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1910

The Coal Trade.

By FREDERICK E. SAWARD.

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THE COAL TRADE

A Compendium of Valuable Information

RELATIVE TO

Coal Production, Prices, Transportation, Etc.

AT HOME AND ABROAD

WITH

MANY FACTS WORTHY OF PRESERVATION
FOR FUTURE REFERENCE.

CORRECTED TO THE LATEST DATES.

By **FREDERICK E. SAWARD**

Editor of THE COAL TRADE JOURNAL

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1910

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TABLE OF CONTENTS

	Page.		Page.
Accidents follow increased use of powder	115	B. T. U. system, drawbacks of	85
Alabama	137	system, pros and cons of the....	85
American bituminous coal, analyses	107-9	system stabbed by its friends ..	104
Anthracite agreement, the	61	Broad Top, Pa., tonnage fell off ...	158
a sample lot shipped to Norway	136	Buffalo, trade at	22-23
carrying roads, dividends of....	68	Rochester & Pittsburgh, annual statement	99
cost of will increase	79	Rochester & Pittsburgh Ry. tonnages, fiscal year	72
companies, coal carried by....	24-5	Rochester & Pittsburgh Ry. tonnage, calendar year	51
large and small coal shipped by companies	60	& Susquehanna Ry. tonnages ..	160
line trade prices for.....	83	Bunker coal	138
miners' wage scale	114	the importance of	53
prices, the standard	72	By-product coke ovens	66
production by counties, 1908....	95	California	119
production, percentages of	80	Canada's coal requirements	16
proportion of unmined	130	fuel imports and exports	1
shipments according to sizes....	78	Canadian coal production, 1909 ...	148
shipments by companies	60	coke production, 1909	148
shipments by months	84	pig iron production	87
shipments by regions	93	upper lake ports, receipts at ...	124
small sizes, shipments of	60	Cannel coal trade, the	90-1
standard preparation of	63	Carbon, unconsumed in black smoke ..	113
standard sizes of	113	Central RR. of N. J., anthracite tonnages	145
tonnages, comparative yearly... use of, does grow.....	113	financial	66
will cost more.....	131	Charlotte	16
Arkansas	143	Chesapeake & Ohio, financial	105
Ashtabula	115	Chicago market, the	39-41
Atchison, Kan., deep coal mine at ..	79	prices	41-2
Atlantic ports, domestic coal shipments	36	Chile, the coal imports of	19
Baltimore, trade at	110-11	Cincinnati, statistics	139
Baltimore & Ohio RR., financial... tonnages	174	Cleveland	115
Beech Creek tonnages	42	receipts and shipments	31
Belgium, the coal trade of	31	year's business at	28-30
Bituminous coal carried, rivers and canals	156	Coal is selling too cheaply	75
Blast furnace coke, essentials of... Boiler room costs, keeping account ..	74	mine fossils, educational value of production, our past and future production, some conditions affecting our	94
Boston	143	requirements, a way to figure ..	83
rate an important factor	121-2	sales, some average results of..	49-51
receipts of domestic coal at....	82	to boiler efficiency, relation of..	112
British Columbia, coal output of... coal, sales of	78	tonnage of the world	79
coal, sales of	172	used for coke and colliery consumption	160
British exports of coal	27	yard sites as an investment	89
export trade, growth of the	112		67
	146		71

THE COAL TRADE.

	Page.		Page.
Coke, freight rates on	101	Kanawha River, coal shipments of..	82
production and coal required.....	101	Kansas	138
Colorado	133-4	Kentucky	28-7
Fuel & Iron Co., business of....	145	the coal fields of	63
Conneaut	115	Lake freight on coal, average	154
Connellsville coke, expected average		side ports, shipments to	120
price in 1910	103	Superior ore trade	8
coke output	72	tonnage by districts	97
coke, prices of	80	Lehigh Valley Coal Co., tonnage..	101
coke production, 1909	73-4	RR. Co., financial	97
region, wages in the	31	Lehigh & Wilkes-Barre Coal Co's	
Cuyahoga customs district shipments	115	tonnage	76
Dangers of mining coal	102	Lewis, president of the U. M. W.,	
Davis C. & C. Co., tonnage of	54	address at St. Louis Pow-wow	162-72
D., L. & W. RR. Co's coal traffic..	156	Lorain	115
financial	146	Lusitania, coal burned by the....	65
Dodge system, coal stored by the..	77	Maryland,	136
Duluth	122	figures, why a difference appears	65
coal docks at	48	tonnages, explanatory note	15
Egypt, imports of coal into	96	Men employed and days worked....	21
Electric haulage interferes with ven-		Mexico's coal output, 1909	19
tilation	98	Michigan	93
haulage means larger mines	57	Milwaukee	116
Electricity an aid to the coal trade.	67	Mine accidents, the inevitable, and	
Erie RR., financial	99	their costs	36
fuel tonnages	54	Missouri	135
Explosives, the growing use of	91	Mobile, market features at	104
Export trade, present and prospec-		Montana	120
tive	12	Montreal	144
Exports of coal	76	Monong. River Con. C. & C. Co..	158
Fair Haven	16	Naval vessels, systematic record of	
Fairport	115	steam efficiency	59
Foundry coke, four essentials of good	115	New Mexico, mining operations in..	94
France, output	15	New Orleans	132
Freight rates on coal from various		Newport News	32
districts	111	New York canals, coal trade of the	81
Fuel, determining heating power of	81	Central, fuel traffic of	128
economy, the problem of	96	market, fluctuations of	119
Georgia	77	market prices	37-8
Germany's coal output	105	O. & W. Ry. Co., financial	158
Girard Estate coal production	150	retailers, tonnage of largest	80
coal royalties	15	State canals, short season on ..	55
Great Britain, coal production of..	21	wholesalers, old time	103
large exports from Channel ports	139	year's trade at	33-6
Great Lakes, heavy vessel losses		New Zealand, coal production	134
on the	150	Norfolk	32
Hamburg, Germany, imports of coal	116	& Western Ry. Co., financial ..	126
Hampton Roads	32	& Western shipments, fiscal year	46
cargo prices at	119	North Dakota	97
Hard coal prices at the mines.....	58	Nova Scotia coal output	8
Head of the Lakes, coal docks at..	47-8	coal sales	16
Heat Unit, a, what it is	55	coal shipments	15
Heat units and prices, a comparison	86-7	consumption at collieries	16
Heavy decrease in 1908	98	shipments on St. Lawrence	144
Illinois	125-6	Ohio	129-30
coal, constituent properties of..	25	Ohio lake ports, coal dumping ma-	
Imports of coal	76	chines at	145
Indiana	142	railroads, tonnage of.....	172
India's coal production	92	Oklahoma	140
Iowa, coal tonnage of	68	Old districts began, when	69
Japan's coal industry	70	Ontario, peat bogs in	141

THE COAL TRADE.

Page.	Page.
Operators should watch market.....	118
Oregon	51
Oswego	16
Peat, obstacles to the use of.....	69
Pensacola	117
Pennsylvania, anthracite companies having operations in two or more districts	7-8
anthracite districts, details of...	6-7
anthracite totals	1
bituminous districts, details of..	2-5
bituminous production, distribu- tion of	82
bituminous coal, production in..	54
bituminous operators producing more than 500,000 tons	5
bituminous totals	1
coke making counties of	89
coke making districts of	105
coal remaining in	148
machine and pick mining in ...	84
machine mined coal in	144
proposed tax on coal in	135
tax advocated for relief of miners	137
RR. coal shipments	78
RR., financial	114
RR., increased tonnage move- ment on	106
Peoria, receipts of coal at	5
Per capita coal consumption	70
Philadelphia	127-8
exports from	156
prices on soft coal	61
Philadelphia & Reading Ry. success	12
Philadelphia & Reading C. & I. Co's tonnages	74
Pig iron, made with anthracite and coke	132
production of	56-7
Pittsburgh	123-4
district, freightage of	23
Coal Co., operations of	154
Shawmut & Northern tonnages.	152
& Lake Erie Ry. tonnages ...	38
Poughkeepsie Bridge, coal traffic via	80
Proper ventilation of mines is es- sential	100
Providence	117
Pumping, the great importance of..	71
Railroad coal piers at seaboard load- ing ports	118
mileage of 1909, the	160
without engines an ineffective mechanism	92
Reading, annual financial statement	91
hard and soft coal carried over	48
great tonnage increase	64
Review of the year 1909	I-III
Russian coal output	126
St. Louis, Mo.	62
receipts of anthracite coal	62
San Francisco, receipts at	124
Sault Canal traffic, 1909	58
Scranton, early name of	102
Seattle, trade at	32
Schuylkill region output 50 years ago	114
Shrinkage in coal weights, causes for	75
Small dealer, the elimination of the	75
Sodus Point	16
Southern Ry. tonnage	30
Spain, imports of coal	25
Spontaneous combustion, danger of. and old story	53 88
Sullivan County, Pa., production...	53
Superior	122
coal docks at	47
Tacoma, coastwise shipments from..	150
Temperature of coal piles, ascertain- ing	84
Tennessee	20-1
C., I. & RR. Co., production..	89
Texas	139
Toledo	131
Toronto, receipts at	130
receipts of lake and rail	128
Trade history of 1909.....	43-6
United States, bituminous coal re- sources of the	57
by-product coke in the	83
coal mined by machines in the	52-3
coal output, increase in, since 1850	88
coal production	IV
coal, tonnage and value of	64
coke, manufacture of in 1908... distribution of coal mined in... kinds of coal produced in ... labor employed in coal mining... lake ports, receipts of coal at..	92 103 106 95 152
Unloading a vessel now and in olden days	48
Utah	141
Utilization of the 1908 output.....	59
Virginia	13-4
Virginian Ry. pier, tonnage of the..	174
Wabash RR. coal tonnage	99
Washington	134
Water supply, the importance of... keeping the, out a great problem	146 174
West Virginia	9-12
coke production	12
larger producers of coal in.... production by districts	17-9 10
railroad tonnages	10-11
Whalebacks not a success, the ...	69
World's railways, mileage of the ..	100
Wyoming	14

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Review of the Year 1909.



In the American coal trade the year 1909 was characterized by slow recovery from the marked depression which existed throughout the preceding year as a result of the panic of 1907. The natural growth of the country served to bring about an increase in the bituminous tonnage, so that it progressed towards the high figures attained in 1907, but several causes conspired to keep down the anthracite production. While statistics show that the coal trade of the United States was not able to duplicate the volume of business that was done in its most prosperous year, the tone of the market at the end of the year had improved to such an extent that it seemed certain that 1910 would establish a new tonnage record. So great a lead has been attained over the next largest coal producer that it seems practically superfluous to state that the United States remains the largest coal producer in the world.

PENNSYLVANIA SHOWED LARGE INCREASE.

Improved business conditions led to the coke tonnage being considerably augmented, and other improved features brought the output of the State of Pennsylvania well above the figures for 1908. This circumstance served to re-establish the Pennsylvania tonnage on a basis fairly above that of England. With all the discouraging features incidental to slow recovery from a period of marked depression the American soft coal tonnage continued at considerably more than a million tons for each working day of the year, and prominent producers who viewed the results at the end of the year were agreed that the fixed requirements were so great that a better price might reasonably be looked for, even in periods of relative inactivity. It is so manifest that under all conditions a very large coal tonnage is required that it is altogether wrong that output should be sacrificed without regard for profit. More than ever before the propriety of railroad companies and other large consumers paying an enhanced price for their coal supplies has been taken under consideration by those concerned in that branch of the business.

For a number of months the year 1909 was characterized by continued dullness very much like that which prevailed during the year 1908. The year did not start off with a spirit of activity; in fact, there was more or less recession in the early part thereof, and nearly all of the first three months constituted an unsatisfactory period for many business men. But with the improvement in the steel trade and in general business conditions as the spring season advanced into summer, there was an expansion of trade in the soft coal market and the fall season commenced on a fair basis.

ANTHRACITE AGREEMENT A FEATURE.

The anthracite agreement expired April 1st, and for a number of weeks there was uncertainty in that quarter. March was a month of heavy tonnage production, and in view of the tonnage stored by producers and dealers there was a considerable amount above ground while the readjustment of working conditions was being arranged for. As in the previous year, financial conditions operated against the advance sale of hard coal, and even in the months of greatest discount there was not an overwhelming demand for tonnage. The result of these circumstances became clearly apparent in July and August, when trade was not only very dull

with the retail and wholesale dealers, but the tonnage produced fell to lower figures than in any other normal month in recent years, and the mining districts experienced a greater degree of dullness and inactivity than in any other recent period not marked by strike or suspension.

The car shortage, practically an annual feature, although it was absent in the fall of 1908, contributed to make an interesting and active trade situation in October, 1909, as weather conditions then favored the trade, but a reaction developed in November, under the influence of mild temperature, which tended to restrict orders to an amount below the actual requirements of the season. This was particularly noticeable in the western and northwestern trade, where the dealers had been over-stocked during two mild seasons and apparently were agreed that they would take no more chances of carrying too heavy a supply of coal. But the November mildness was followed by thoroughly seasonable weather in December, and the trade in all directions developed great activity. Indeed, so marked was the change that there was reference made in conservative quarters to the possibilities of a coal famine in the city of Chicago, usually the most over-supplied coal market in the United States.

ACTIVE WINTER BUSINESS.

The active conditions arising from cold weather, slow transportation and scarcity of cars continued well along over the turn of the year, and on all spot sales made in the leading markets bituminous coal brought a good price. The ease with which increased figures were to be had made it very apparent to those burdened with low-priced contracts that a little better judgment in the matter of producing and selling would make a very notable difference in the net result attained by the producers of soft coal. And realizing that practically every year, except a year of panic, car supply is sure to be restricted in the fall, it became apparent to them that a heavy percentage of possible output should not be contracted for at the low prices of the spring season. Such a course leaves too small an amount of spot coal to be realized on at a profit, and indeed it may result in a concern being hard pushed to fill its low-priced contract obligations. This is always a very unsatisfactory form of trade activity.

Despite all the comment relative to higher railroad freights, the coal trade did not have to pay any more for transportation, on the surface at least, although it is quite probable that the cutting off of rebates and all special arrangements, as well as the enforcement of demurrage charges, results in the coal trade as a whole now paying a higher rate per ton than ever before. During the greater part of the year coastwise vessel rates were low, and it was not until the fall season that there was an advance. When the tonnage began to move actively there was a very noticeable increase, and at the end of the year prices were far above the low rates of the early summer.

NEW FACILITIES AND NEW DEVELOPMENTS.

There was some progress made in the development of new properties, but as a general thing this did not prove attractive, in view of the fact that markets were over-stocked the greater part of the year. There were, however, certain important sales of coal properties, new companies were organized, and in the latter part of the year, at least, more attention than usual was paid to the financial aspect of coal producing enterprises. All of these features may lead to important developments in the current year.

The Western Maryland RR. Co. emerged from receivership and new arrangements were made under which it is probably destined to play a more important part in the coal trade of its section. By the end of the

year the Virginian Ry. had been put in such condition. both with regard to its transportation facilities and the capacity of mines along the road, that it bade fair to handle a much augmented tonnage during 1910. The small amount of coal shipped via this route during the several months of 1909 in which it was in operation was in a measure surprising, especially in view of the activity of other shippers to the north and south of its line. Beginning with a campaign of low prices in the early months of the year, shippers of coal from the New River and Pocahontas fields greatly enlarged their business east and west, and the Chesapeake & Ohio Ry., in particular, showed, a remarkable tonnage growth during the year under review.

As in the preceding year, the central Pennsylvania operators were at a great disadvantage by reason of their high cost of production, and as their output finds sale chiefly via the ports of New York and Philadelphia, a depressed tone prevailed among a considerable fraction of the trade in those two cities. An effort was made to re-adjust mining costs, but this was found to be impracticable and it was not until the very active conditions of the winter season eventuated that the central Pennsylvania operators were able to enjoy even a small degree of satisfactory conditions.

SAFETY REQUIREMENTS IN THE FOREGROUND.

The anthracite miners and operators renewed for three years their very favorable working agreement, making only nominal changes in the conditions of employment. And with the usual circular price prevailing the men benefited, as usual, according to the sliding scale, so that there is very little to comment upon as regards the relations between capital and labor in the hard coal fields. Conditions of employment have been more stringently looked after than heretofore, and the age of minor employes and the possession of certificates by the men actually engaged in mining have been the subject of more careful scrutiny than in other recent years. This no doubt will contribute to the enhanced degree of safety now being urgently sought by all having to do with the larger aspects of mining affairs.

The element of safety has been kept prominently in the public eye by reason of accidents, great and small, occurring for the most part in the bituminous fields. Practically no section has been free from accidents of such importance as to attract public notice, and in the fall of the year the State of Illinois was so unfortunate as to contribute to mining history an accident as great and lamentable as almost any ever recorded in Pennsylvania or West Virginia. It is recognized by producing interests that with the development of modern mines greater precautionary measures are required than in the small operations of early years, and with press and public, as well as the legislative authorities, demanding better conditions, it is incumbent upon the mine owners to secure a more liberal margin for working expenses. This feature, together with the matter of an increased price on large contracts, may, we think, be taken as the chief theme of the soft coal industry during the year 1909.

In conclusion it can be said that 1909 practically marked recovery from the disastrous results following in the wake of the 1907 panic, and 1910 opens auspiciously. With a population larger by some 2,000,000 or 3,000,000 than it was in the former era of prosperity, and with agricultural and industrial conditions on probably the best basis ever known, the outlook for coal tonnage in the year is very good, and it is to be hoped that recognition of the changing course of commodity prices at large, and the increased operating expenses of a mine, will lead to a satisfactory measure of profit being secured.

COAL PRODUCTION OF THE UNITED STATES.

In the schedule printed below are tonnages of coal production compiled from the best and most accurate sources. It is possible that something more was produced in some of the States, for there is always an amount of coal drawn from country banks for farmers' use, and from small mines that are not under mine inspectors' regulations. The returns are being kept more accurately than heretofore and statements are very close to exactness.

The anthracite production of Pennsylvania is always given in gross tons below, as in all the reports of producers, carriers and mine inspectors, while, with the exception of the tonnage from Maryland (which we reduce to net tons), the accounts of the bituminous output are kept in net tons.

Production of anthracite—given below—should not be confused with shipments, and details thereof, given elsewhere in this work.

BITUMINOUS.	Page.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Pennsylvania	1	118,413,637	129,293,206	150,143,177	117,179,527	136,165,676
Illinois	125	38,434,363	41,480,104	51,317,146	47,659,690	52,000,000
W. Virginia	9	37,791,580	43,290,350	48,091,583	41,897,843	48,600,000
Ohio	129	25,552,950	27,731,640	32,142,419	26,270,639	27,756,192
Indiana	142	11,895,252	12,092,560	13,985,713	12,314,890	13,692,089
Alabama	137	11,866,069	13,107,963	14,250,454	11,604,593	13,790,268
Colorado	133	8,826,429	10,111,218	10,790,236	9,634,973	10,772,490
Kentucky	26	8,432,523	9,653,647	10,753,124	10,246,553	10,500,000
Iowa	68	6,798,609	7,266,224	7,574,322	7,161,310	7,163,353
Tennessee	20	5,963,396	6,259,275	6,810,243	6,199,171	6,400,000
Wyoming	14	5,602,021	6,133,994	6,252,990	5,489,902	6,419,567
Kansas	138	6,423,979	6,024,775	7,322,499	6,245,508	6,024,892
Maryland	136	5,108,539	5,435,453	5,532,628	4,377,093	4,600,000
Virginia	13	4,275,271	4,254,879	4,710,895	4,259,042	4,500,000
Missouri	135	3,983,378	3,758,008	3,997,936	3,317,315	3,787,431
Washington	134	2,864,926	3,276,184	3,680,532	3,024,943	3,590,639
Oklahoma	140	2,924,421	2,860,200	3,642,658	2,948,916	2,790,000
New Mexico	94	1,649,933	1,964,713	2,628,959	2,467,937	3,080,360
Montana	120	1,643,833	1,829,921	2,016,857	1,920,190	2,541,679
Utah	141	1,332,372	1,772,561	1,947,607	1,846,792	2,322,209
Arkansas	143	1,934,673	1,864,268	2,670,438	2,078,357	2,100,000
Texas	139	1,200,684	1,312,873	1,648,069	1,895,377	1,859,259
Michigan	93	1,473,211	1,346,338	2,055,858	1,835,019	1,757,820
Georgia	77	353,548	332,107	362,401	264,822	300,000
N. Dakota	97	271,928	305,689	347,760	320,742	350,000
Oregon	51	109,641	79,731	70,981	86,259	90,000
California	119	80,824	30,831	24,089	21,862	20,000
Total net tons..		315,259,491	342,874,867	394,759,112	332,573,944	372,973,924
ANTHRACITE, gross		68,276,394	64,410,227	76,432,421	74,347,102	72,288,924
Grd. tot., net tons.		392,919,341	414,157,278	480,363,424	415,842,698	453,937,518

Some coal is mined in North Carolina, but no figures are furnished by producing interests. A few thousand tons were mined in Idaho during 1906, 1907, 1908 and 1909. Massachusetts appeared as a coal producer in 1908, there being 50 tons mined during the year.

Page numbers show where details are to be found.

PENNSYLVANIA ANTHRACITE AND BITUMINOUS TOTALS.

The State of Pennsylvania holds its position as the largest producer of coal in the United States. Its total tonnage of both grades — anthracite and bituminous — is nearly as much as that produced in all the other States in the Union. It has mine inspection districts that turn out more than many States of whose business much is heard in the course of a year. The total output last year was equal to 217,129,270 net tons of 2,000 pounds. Details of the several districts are as below—

ANTHRACITE DISTRICTS.					BITUMINOUS DISTRICTS.						
I	3,378,832	XI	.....	4,487,805	I	.....	5,769,941	XI	.....	7,794,985
II	4,173,443	XII	.....	2,672,515	II	.....	8,689,340	XII	.....	7,768,463
III	4,423,702	XIII	.....	2,765,810	III	.....	3,565,252	XIII	.....	6,316,405
IV	4,064,759	XIV	.....	2,259,352	IV	.....	6,337,112	XIV	.....	5,676,494
V	3,899,441	XV	.....	2,826,003	V	.....	7,216,028	XV	.....	7,272,987
VI	4,517,587	XVI	.....	2,523,278	VI	.....	7,833,115	XVI	.....	7,042,028
VII	5,219,841	XVII	.....	3,903,947	VII	.....	7,152,877	XVII	.....	6,006,011
VIII	3,691,674	XVIII	.....	2,572,378	VIII	.....	3,924,068	XVIII	.....	3,053,509
IX	6,173,284	XIX	.....	2,710,292	IX	.....	7,946,296	XIX	.....	7,920,205
X	3,843,979	XX	.....	2,181,002	X	.....	5,397,972	XX	.....	5,575,644
									XXI	.....	7,906,944

Making a total of 72,288,924 gross tons, or 80,963,594 net tons.

Making a total of 136,165,676 net tons

Total tonnage produced (not shipments only) in recent years has been:

Year.	Anthracite.	Bituminous.	Year.	Anthracite.	Bituminous
1898.....	46,801,467	64,229,627	1904.....	65,709,258	99,600,354
1899.....	54,034,224	73,066,943	1905.....	68,276,394	119,330,878
1900.....	51,232,101	79,318,089	1906.....	64,410,277	129,532,989
1901.....	59,905,951	80,914,236	1907.....	76,935,464	149,576,089
1902.....	36,058,924	98,970,208	1908.....	74,347,102	117,179,527
1903.....	66,342,726	103,713,699	1909.....	72,288,924	136,165,676

In this table net tons are used in reporting bituminous product, and gross tons for anthracite product. Figures are actual product as reported by the mine inspectors, not shipments only.

CANADA'S FUEL IMPORTS AND EXPORTS.

During the fiscal years ending June 30th, the imports of fuel into Canada were as follows:—

Receipts.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.*
Bituminous	4,826,535	5,516,019	6,714,311	6,710,933	5,625,063
Anthracite	2,604,137	2,200,863	2,784,161	3,296,522	3,017,844
Coke	371,593	480,222	557,842	565,273	500,000
Bituminous dust				1,139,233	1,230,017
Total	7,802,265	8,197,104	10,056,314	11,711,961	10,372,924

* Calendar year.

Exports of coal amounted to 1,500,000 tons in 1908 and 1,749,197 tons in 1909.

Under the general tariff the duty on bituminous coal is 53 cents per net ton, and on bituminous dust, or slack, and upon charcoal, 14 cents per ton. There is no duty imposed upon anthracite or coke.

DETAILS OF BITUMINOUS DISTRICTS OF PENNSYLVANIA, 1909.

FIRST.

Pittsburgh-Westmoreland Coal Co.	1,521,406	Jefferson & Clearfield C. & I. Co.	768,881
Ellsworth Collieries Co.	1,369,038	Buffalo & Susquehanna C. M. Co.	608,466
Monon. River Con. C. & C. Co.	967,499	Rochester & Pittsburgh C. & I. Co.	519,183
Pittsburgh Coal Co.	526,723	Cascade C. & C. Co.	367,852
United Coal Co.	366,728	Kettle Creek C. M. Co.	258,832
Charleroi Coal Works	357,599	Jefferson Coal Co.	226,698
Youghiogheny & Ohio Coal Co.	180,908	Fairmount Coal Co.	183,088
Diamond C. & C. Co.	174,712	Allegheny River Mining Co.	167,645
Henderson Coal Co.	143,250	Falls Creek Coal Co.	123,644
Pittsburg-Buffalo Co.	126,804	Rembrandt Peale	113,306
Smaller Operators	46,274	Oak Ridge Mining Co.	112,758
Total	5,769,941	Panther Run Coal Co.	94,952
		Mahoning Coal Co.	83,062
		Clearfield Colliery Co.	69,083
		Smaller Operators	405,533
		Total	6,337,112

SECOND.

Jamison C. & C. Co.	2,608,205
Keystone C. & C. Co.	1,963,340
Latrobe-Connellsville C. & C. Co.	1,034,105
H. C. Frick Coke Co.	596,918
Loyal Hanna C. & C. Co.	456,741
Hostetter-Connellsville Coke Co.	387,283
Atlantic Crushed Coke Co.	302,696
Donohoe Coke Co.	209,667
Ligonier Coal Co.	179,190
Latrobe Coal Co.	170,521
Shenango Furnace Co.	131,304
Mount Pleasant Coke Co.	115,398
Fort Ligonier Coal Co.	87,075
Ligonier Diamond C. & C. Co.	78,539
Whyel Coke Co.	75,463
Columbia C. & C. Co.	71,786
Unity Coal Co.	65,242
Smaller Operators	154,917
Total	8,689,340

THIRD.

Great Lakes Coal Co.	456,806
Sharon Coal & Limestone Co.	368,720
Butts Cannel Coal Co.	163,404
Westerman-Filer Co.	145,156
Acme C. M. Co.	144,660
State Line Coal Co.	114,575
Grove Coal Co.	113,840
Mercer I. & C. Co.	113,389
Pittsburgh Plate Glass Co.	108,620
Eagle Coal Co.	101,309
Pardoe Coal Co.	96,667
Keystone Mining Co.	88,401
Monterey Coal Co.	74,777
Windoom C. M. Co.	74,359
F. A. Mizener	72,183
Eric C. & C. Co.	67,161
Fowler C. M. Co.	66,135
Samuel Sherwin	64,579
Clarion C. M. Co.	62,353
Brady's Bend C. M. Co.	59,645
Shenango Coal Co.	58,813
Monarch Coal Co.	56,352
Beaver C. & C. Co.	55,967
Bessemer & Lake Erie C. M. Co.	55,052
Rochester & Pittsburgh C. & I. Co.	54,879
Lochrie Bros. Coal Co.	50,000
Smaller Operators	678,450
Total	3,565,252

FOURTH.

Northwestern M. & Ex. Co.	1,370,328
Shawmut Mining Co.	854,761

FIFTH.

H. C. Frick Coke Co.	4,502,707
Oliver & Snyder Steel Co.	723,038
W. J. Rainey	451,691
Bessemer Coke Co.	382,366
Fayette Coke Co.	158,844
Puritan Coke Co.	132,673
S. L. Smith & Co.	77,250
Wharton Steel Co.	73,918
Stewart Iron Co., Ltd.	68,050
Sunshine C. & C. Co.	64,385
H. R. Sackett Coke Co.	55,881
James H. Hoover	55,287
South Fayette Coke Co.	54,882
Smaller Operators	415,059
Total	7,216,028

SIXTH.

Names of Operators.	Tons.
Berwind-White C. M. Co.	2,599,073
Cambria Steel Co.	1,955,553
Logan Coal Co.	475,255
Pennsylvania C. & C. Co.	356,349
Stineman C. & C. Co.	330,747
Argyle Coal Co.	273,416
Henriette C. M. Co.	250,294
Stineman C. M. Co.	214,271
South Fork C. M. Co.	213,198
Valley Coal & Stone Co.	200,841
J. Blair Kennerly	141,641
Alton Coal Co.	124,851
Shade C. M. Co.	115,193
Sunnyside Coal Co.	111,830
Loyal Hanna C. & C. Co.	107,397
Citizens Coal Co.	85,345
Morrellville C. M. Co.	65,891
Priscilla C. M. Co.	64,363
Ninevah C. & C. Co.	53,182
Ray Coal Co.	51,960
Beaver Run Coal Co.	51,062
Smaller Operators	291,521
Total	7,833,115

SEVENTH.

Pittsburgh Coal Co.	3,989,278
National Mining Co.	814,631
Pittsburgh & Eastern Coal Co.	459,156
Carnegie Coal Co.	346,747
Fayette Coal Co.	313,065
Pittsburg-Buffalo Co.	183,612

SEVENTH (Continued).

Pan Handle Mining Co.	148,384
Verner C. & C. Co.	146,440
Bulger Block Coal Co.	93,827
Hugh McHugh	82,000
Pryor Coal Co.	68,868
Hormel Coal Co.	67,068
Steen Coal Co.	66,131
J. H. Sanford Coal Co.	64,597
McClane Coal Co.	57,061
Smaller Operators	252,522
Total	7,152,877

EIGHTH.

Morrisdale Coal Co.	491,868
Morris Run CM. Co.	401,952
Clearfield Bituminous Coal Corp.	369,577
Peale, Peacock & Kerr, Inc.	366,361
Blossburg Coal Co.	283,344
Clarence Coal Co.	276,377
Moshannon CM. Co.	179,033
Pennsylvania C. & C. Co.	148,227
Irish Bros. Coal Co.	137,560
Kelley Brothers Coal Co.	111,429
Carbon C. & M. Co.	100,703
Victoria CM. Co.	78,236
Ghem Coal Co.	73,277
Monarch Coal Co.	61,458
Ashman Coal Co.	55,616
Atherton-Barnes Co.	52,219
Thomas J. Lee	50,211
Smaller Operators	686,620
Total	3,924,068

NINTH.

Names of Operators.	Tons.
H. C. Frick Coke Co.	3,796,272
W. J. Rainey	1,074,886
Pittsburgh Coal Co.	704,658
Lincoln C. & C. Co.	363,100
Pittsburgh & Erie Coal Co.	350,634
Dunbar Furnace Co.	346,578
Oliver & Snyder Steel Co.	299,783
Brown & Cochran	240,879
Atlas Coke Co.	198,686
Waltersburg Coke Co.	143,442
Cambria Steel Co.	114,305
James Cochran Sons Co.	81,928
Smaller Operators	231,145
Total	7,946,236

TENTH.

Pennsylvania C. & Co. Co.	961,207
Commercial CM. Co.	405,236
Portage CM. Co.	268,962
Sonman Shaft Coal Co.	243,776
Shoemaker CM. Co.	222,082
Tunnel Coaling Co.	199,425
Vinton Colliery Co.	197,866
Nant-y-Glo CM. Co.	168,673
Big Bend CM. Co.	167,661
Altoona C. & C. Co.	162,625
Forge CM. Co.	157,002
Taylor & McCoy C. & C. Co.	144,125
Cresson & Clearfield C. & C. Co.	140,583
W. H. Piper & Co.	126,018
Miller Coal Co.	121,696
George Pearce & Sons	116,409
Lackawanna C. & C. Co.	116,409
Irvena C. & C. Co.	96,794
Leahey CM. Co.	84,533

Lilly Coal Co.	72,784
Glen White C. & L. Co.	71,931
Estep Bros. CM. Co.	68,178
Baker-Whiteley Coal Co.	68,116
Penker Coal Co.	65,543
Princess CM. Co.	63,100
Andersen CM. Co.	59,006
Bens Creek Sonman Coal Co.	58,710
A. Smith & Co.	57,969
Blain Run Coal Co.	56,800
J. Blair Kennerly	54,344
Plymouth CM. Co.	52,353
Cardiff Coal Co.	50,629
Smaller Operators	497,428
Total	5,397,972

ELEVENTH.

H. C. Frick Coke Co.	4,980,127
Washington C. & Co. Co.	1,820,773
W. J. Rainey	377,106
Westmoreland Coal Co.	329,462
Mt. Pleasant Coke Co.	118,592
Mt. Pleasant Connellsville Coke Co.	31,626
Veteran Coke Co.	71,148
Clare Coal Co.	64,151
Smaller Operators	452,010
Total	7,794,985

TWELFTH.

Rochester & Pittsburgh C. & I. Co.	2,282,601
Cowanhanock C. & C. Co.	518,599
Buffalo & Sus. C. & C. Co.	802,903
Jefferson & Clearfield C. & I. Co.	794,951
Clearfield Bituminous Coal Corp.	439,056
Pennsylvania C. & C. Co.	340,963
Cascade Coal Co.	283,196
Ellsworth-Dunham Coal Co.	190,898
Berwind-White CM. Co.	173,574
Seneca CM. Co.	172,253
Urey Ridge Coal Co.	170,293
Wharton C. & C. Co.	138,245
John McLeavy & Co.	132,677
Punxsutawney CM. Co.	124,678
Anita CM. Co.	120,848
Summit Coal Co.	103,000
Glenwood Coal Co.	92,865
Indiana Coal Co.	80,600
Valia Coal Co.	66,512
Tearing Run Coal Co.	58,691
Bonnsville Coal Co.	55,296
Bear Run Coal Co.	54,421
Madeira-Hill CM. Co.	54,277
Graceton Coke Co.	53,931
Smaller Operators	113,135
Total	7,768,463

THIRTEENTH.

Pittsburgh Coal Co.	3,365,110
Monon. River Cons. C. & C. Co.	1,363,948
Penn Gas Coal Co.	528,868
Blaine Coal Co.	490,140
United Coal Co.	348,234
Youghiogheny & Ohio Coal Co.	96,236
Smaller Operators	145,863
Total	6,316,406

FOURTEENTH.

Pittsburgh Gas Coal Co.	1,132,627
N. Y. & Clev. Gas Coal Co.	457,070
Allegheny Coal Co.	317,143
Bessemer C. & C. Co.	309,702

FOURTEENTH (Continued).

Saltburg Coal Co.	238,799
Cornell Coal Co.	237,089
Pittsburgh Plate Glass Co.	230,016
Pennsylvania Salt Mfg. Co.	154,668
Cochran Coal Co.	136,113
Howard Gas Coal Co.	114,174
Avonmore C. & C. Co.	113,574
Joseph G. Beale & Co.	111,284
McKean Coal Co.	106,737
Pine Run Co.	105,775
Graff Coal Co.	98,814
Valley Camp Coal Co.	98,477
Allegheny C. & C. Co.	84,443
McFetridge Bros.	83,794
Conemaugh Coal Co.	83,588
U. S. Sewer Pipe Co.	69,865
Apollo Coal Co.	69,300
Leechburg C. & C. Co.	67,919
Mitchell-Watson Coal Co.	56,487
Lucesco Coal Co.	53,819
Kiskiminitas Coal Co.	52,210
Edri Coal Co.	52,190
Smaller Operators	1,040,752
Total	5,676,494

FIFTEENTH.

Pennsylvania C. & C. Co.	1,528,980
Penn Mary Coal Co.	888,059
Russell C. Co. (Rembrandt Peale) ..	454,922
Barnes & Tucker	426,420
Carrolltown Coal Co. (Rembrandt Peale) ..	379,618
Empire CM. Co.	337,873
Clearfield Bituminous Coal Corp.	336,965
Greenwich C. & C. Co.	329,184
Sterling Coal Co.	303,455
Madeira Hill CM. Co.	302,664
Peale, Peacock & Kerr, Inc.	275,228
Dixon Coal Co.	226,287
Cherry Tree Coal Co.	171,315
Duncan Spangler Coal Co.	167,758
Cymbria Coal Co.	165,420
Hines Coal Co.	130,314
Allport Coal Co.	119,462
Oak Ridge C. & C. Co.	93,020
Nanty Glo CM. Co.	83,726
Rich Hill Coal Co.	81,536
Woodland C. & C. Co.	58,650
Potts Run Land Co.	55,999
Logan Coal Co.	55,369
Smaller Operators	291,773
Total	7,272,987

SIXTEENTH.

H. C. Frick Coke Co.	2,802,007
Cons. Connellsville Coke Co.	449,992
Brier Hill Coke Co.	406,377
Taylor C. & C. Co.	337,950
Orient Coke Co.	356,874
Tower Hill Connellsville Coke Co.	355,152
Connellsville Central Coke Co.	344,452
Thompson Connellsville Coke Co.	320,230
Republic I. & S. Co.	190,727
Sunshine C. & C. Co.	171,740
Century Coke Co.	158,253
Struthers C. & C. Co.	142,731
Woodside Coke Co.	124,560
McKeefey Coal Co.	120,571
Monon. River Cons. C. & C. Co.	115,180
Didworth Coal Co.	113,941
Bessemer Coke Co.	113,201

Clyde Coal Co.	103,778
Prospect C. & C. Co.	103,174
LaBelle Coke Co.	70,090
Smaller Operators	141,039
Total	7,042,028

SEVENTEENTH.

Pittsburgh Coal Co.	2,441,350
Pittsburgh-Buffalo Co.	770,689
Pittsburgh Term. RR. & Coal Co.	716,930
Youghiogheny & Ohio Coal Co.	588,555
Crescent Coal Co.	357,590
United Coal Co.	344,269
Monon. River Cons. C. & C. Co.	230,214
Mifflin Coal Co.	204,160
Meadow Lands Coal Co.	192,129
Ollett Brothers	73,148
Smaller Operators	86,977
Total	6,006,011

EIGHTEENTH.

Berwind-White CM. Co.	392,093
Corona C. & C. Co.	304,985
Carbon C. & C. Co.	203,935
H. B. Swoope & Co.	183,342
Rockhill I. & Coal Co.	183,086
Grampian CM. Co.	180,533
Bulah Shaft Coal Co.	113,040
S. J. Mountz & Co.	112,410
John Langdon	94,123
Colonial Iron Co.	85,789
Clark Brothers CM. Co.	83,477
Joseph E. Thropp	81,729
Bulah Coal Co.	80,458
Whitney & Kemmerer	70,726
Betz CM. Co.	70,139
W. A. Gould & Bro.	60,778
Moshannon CM. Co.	57,647
Broad Top C. & M. Co.	54,927
Centre C. & C. Co.	51,601
Cambria CM. Co.	50,040
Smaller Operators	438,327
Total	3,053,509

NINETEENTH.

Westmoreland Coal Co.	2,127,079
Keystone C. & C. Co.	1,539,075
N. Y. & Clev. Gas Coal Co.	1,053,575
Ocean Coal Co.	856,942
Penn Gas Coal Co.	655,244
Pittsburgh-Westmoreland Coal Co.	618,720
Pittsburgh & Baltimore Coal Co.	556,103
Manor Gas Coal Co.	311,182
W. B. Skelly Coal Co.	88,091
Adamsburg Gas Coal Co.	52,140
Smaller Operators	62,056
Total	7,920,205

TWENTIETH.

Consolidation Coal Co.	1,736,413
Berwind-White CM. Co.	833,300
Jenner Quemahoning Coal Co.	671,122
Quemahoning Coal Co.	378,600
Brothers Valley Coal Co.	261,165
Merchants Coal Co.	247,068
Meyersdale Coal Co.	228,015
Knickerbocker Coal Co.	190,835
Somerset Mining Co.	155,713
Reading Iron Co.	139,129
Atlantic Coal Co.	90,809
Enterprise Coal Co.	68,381

THE COAL TRADE.

5

TWENTIETH (Continued).

Haws Coal Co.	57,732	Vesta Coal Co.	2,338,482
Carbo Smokeless Coal Co.	53,103	Pittsburgh Coal Co.	1,265,306
Somerset & Cambria Coal Co.	52,829	Peoples Coal Co.	282,071
Smaller Operators	411,540	Naomi Coal Co.	223,567
Total	5,575,644	Diamond Coal Co.	176,911
		Sunshine C. & C. Co.	52,818
		Zundell Coal Co.	51,515
		Smaller Operators	169,587
		Total	7,906,944

TWENTY-FIRST.

Monon. River Cons. C. & C. Co., 3,356,697

OPERATORS IN THE PENNSYLVANIA BITUMINOUS DISTRICTS PRODUCING MORE THAN 500,000 TONS DURING THE YEAR.

Pittsburgh Coal Co.	Ber.-White CM. Co.	Northwest. M. & Ex. Co.
1st	6th	4th
7th	12th	Roch. & Pitts. C. & I. Co.
9th	18th	3rd
13th	20th	4th
17th	H. C. Frick Coke Co.	12th
21st	2nd	Jeff. & Clear. C. & I. Co.
Keystone C. & C. Co.	5th	4th
2nd	9th	12th
19th	11th	Loyal Hanna C. & C. Co.
Pittsburg-Buffalo Co.	16th	2nd
1st	Vesta Coal Co.	6th
7th	16th	Oliver & Snyder S. Co.
17th	21st	5th
Youghiog. & O. C. Co.	Shawmut Mining Co.	9th
1st	4th	National Mining Co.
13th	Cambria Steel Co.	7th
17th	6th	Morrisdale Coal Co.
United Coal Co.	9th	8th
1st	15th	15th
13th	Peale, Peacock & Kerr.	Washington C. & C. Co.
17th	8th	11th
Jamison C. & C. Co.	15th	Pitts. Gas Coal Co.
2nd	Clearfield Bit. C. Corp.	14th
Lat.-Conn. C. & C. Co.	8th	Cowanshannock C. & C. Co.
2nd	12th	12th
W. J. Rainey.	15th	N. Y. & Clev. G. C. Co.
5th	Bessemer Coke Co.	14th
9th	5th	19th
11th	11th	Westmore. Coal Co.
Penn Gas Coal Co.	16th	11th
13th	Pitts. & Westm. C. Co.	19th
19th	1st	Rembrandt Peale.
Pennsyl. C. & C. Co.	19th	4th
6th	Commercial CM. Co.	15th
8th	10th	Consolidation Coal Co.
10th	18th	20th
12th	Pitts. Plate Glass Co.	Jenner Quem. C. Co.
15th	1st	20th
Monon. R. Con. C. & C. Co.	3rd	Ocean Coal Co.
1st	14th	19th
13th	Buff. & Susq. CM. Co.	Pitts.-Balt. Coal Co.
16th	4th	19th
17th	12th	Ellsworth Collieries Co.
21st		1st
		Pitts. Term. RR. & C. Co.
		17th

The receipts of coal at Peoria, Ill., during the calendar year 1909, amounted to 2,811,702 tons compared with 2,430,711 tons during the year previous. The shipments from that city during the year amounted to 1,577,607 tons compared with 1,085,162 tons during the year 1908.

DETAIL STATISTICS OF ANTHRACITE DISTRICTS—1909.

By the courtesy of the several mine inspectors in the Pennsylvania anthracite districts, we are enabled to give the following details, showing the total production of coal by each operator in the district named. It is believed that these returns will prove of value in many cases, as they serve to show the productive achievements of the different concerns.

FIRST.		Elliott, McClure & Co.	300,897
D. & H. Co.	1,922,329	Hillside C. & I. Co.	223,754
H. C. & I. Co.	643,966	Northern Anthracite Coal Co.	155,623
Scranton Coal Co.	451,350	Hudson Coal Co. (D. & H. Co.)..	109,651
Northwest Coal Co.	190,698	O'Boyle-Foy Anthracite Coal Co..	93,686
Morss Hill Coal Co.	41,868	Austin Coal Co.	18,434
Carbondale Coal Co.	29,247	Randall & Schaad Bros. Anth. C. Co	8,977
Humbert Coal Co.	19,515	Total	3,899,441
Archbald Coal Co.	12,827	SIXTH.	
Fall Brook Coal Co.	8,887	Pennsylvania Coal Co.	2,377,624
Outlook Coal Co.	6,294	Lehigh Valley Coal Co.	500,982
Spring Hill Coal Co.	5,673	Hudson Coal Co. (D. & H. Co.)..	485,055
West Mountain Coal Co.	5,259	Hillside C. & I. Co.	456,479
Salem Hill Coal Co.	3,777	Delaware & Hudson Co.	79,455
Clinton Falls Coal Co.	3,450	Traders Coal Co.	78,290
Stillwater Coal Co.	3,134	Reliance Coal Co.	39,702
Ansley Coal Co.	570	Total	4,517,587
Total	3,378,832	SEVENTH.	
SECOND.		Delaware & Wilkes-Barre Coal Co. .	2,301,418
Delaware & Hudson Co.	1,418,546	Lehigh Valley Coal Co.	1,569,610
Scranton Coal Co.	1,000,817	Delaware & Hudson Co.	852,639
Temple Iron Co.	826,732	Red Ash Coal Co.	224,942
D., L. & W. RR. Co.	456,847	North American Coal Co.	199,077
Dolph Coal Co.	172,609	Pittston C.M. Co.	82,096
Mt. Jessup Coal Co.	168,416	Total	5,219,841
Moosic Mt. Coal Co.	134,270	EIGHTH.	
Blakely Coal Co.	12,306	Lehigh Valley Coal Co.	1,368,524
Total	4,173,443	Temple Iron Co.	927,179
THIRD.		Kingston Coal Co.	605,594
D., L. & W. RR. Co.	1,108,251	Plymouth Coal Co.	190,801
Pennsylvania Coal Co.	824,302	East Boston Coal Co.	190,357
Price-Pancoast Coal Co.	701,131	Stevens Coal Co.	162,093
Hudson Coal Co. (D. & H. Co.) .	664,539	Raub Coal Co.	104,385
Scranton Coal Co.	655,635	Clear Spring Coal Co.	86,037
Green Ridge Coal Co.	119,111	D., L. & W. RR. Co.	42,594
A. D. & F. M. Spencer Coal Co. .	101,787	Troy Coal Co.	14,100
North-End Coal Co.	70,962	Total	3,691,674
Economy Lt., Ht. & Pow. Co.	50,000	NINTH.	
Carney & Brown Coal Co.	40,333	Kingston Coal Co.	1,431,631
Nay-Aug Coal Co.	37,973	D., L. & W. RR. Co.	1,196,001
Clearview Coal Co.	26,411	Lehigh & Wilkes-Barre Coal Co..	1,062,884
Bulls-Head Coal Co.	23,267	Delaware & Hudson Co.	1,056,103
Total	4,423,702	Parrish Coal Co.	402,689
FOURTH.		Plymouth Coal Co.	169,494
D., L. & W. RR. Co.	3,325,427	Geo. F. Lee Coal Co.	73,931
Delaware & Hudson Co.	232,162	West Nanticoke Coal Co.	75,596
Scranton Coal Co.	209,178	Bright Coal Co.	12,500
Peoples Coal Co.	171,898	Dunn Coal Co.	12,456
Marian Coal Co.	101,871	Total	6,173,284
Finn Coal Co.	15,778	TENTH.	
Minooka Coal Co.	8,445	Susquehanna Coal Co.	1,321,625
Total	4,064,759	D., L. & W. RR. Co.	1,135,349
FIFTH.		West End Coal Co.	621,938
Pennsylvania Coal Co.	1,131,513	Lehigh & Wilkes-Barre Coal Co..	457,762
D., L. & W. RR. Co.	779,570	Alden Coal Co.	277,306
Jermyn & Co.	763,126	Total	3,843,979
Connell Anthracite Mining Co.	314,219		

ELEVENTH.

G. B. Markle & Co.	1,122,161
Lehigh Valley Coal Co.	600,497
Coxe Bros. & Co., Inc.	596,183
A. Pardee & Co.	547,738
Pardee Bros. & Co.	518,184
Harwood Coal Co.	245,410
C. M. Dodson & Co.	224,960
Upper Lehigh Coal Co.	202,011
Hazle Mountain Coal Co.	163,751
John S. Wentz & Co.	140,885
M. S. Kemmerer & Co.	95,270
Black Creek Coal Co.	16,675
Stauffer & Trezise	8,521
Thos. R. Reese & Son	5,569
Total	4,487,805

TWELFTH.

Philadelphia & Reading C. & I. Co.	2,248,964
Lentz Coal Co.	271,874
Lehigh Valley Coal Co.	161,677
Total	2,672,515

THIRTEENTH.

Philadelphia & Reading C. & I. Co.	1,479,889
Lehigh Valley Coal Co.	379,471
Thomas Colliery Co.	341,586
Susquehanna Coal Co.	236,940
H. H. Smith & Co.	76,880
Brighton Coal Co.	71,083
Brookwood Coal Co.	67,852
Gerber & Seaman	41,770
Oxford Coal Co.	34,064
Cambridge Coal Co.	28,882
Wm. Niswenter	7,173
Total	2,765,810

FOURTEENTH.

Philadelphia & Reading C. & I. Co.	1,069,145
Lehigh Valley Coal Co.	624,753
Mid Valley Coal Co.	320,966
W. R. McTurk Coal Co.	136,011
Girard Mammoth Coal Co.	91,558
Cabin Run Coal Co.	14,365
Dreshman Coal Co.	2,554
Total	2,259,352

FIFTEENTH.

Phil. & Reading C. & I. Co.	1,124,121
Mineral RR. & Mining Co.	772,252
Lehigh Valley Coal Co.	279,538
Greenough Red Ash Coal Co.	238,961
Colonial Collieries Co.	200,834
Enterprise Coal Co.	121,425
Excelsior Coal Co.	90,882
Total	2,826,003

SIXTEENTH.

Phila. & Reading C. & I. Co.	1,209,012
Mineral RR. & Mining Co.	908,278
Excelsior Coal Co.	161,080
Shipman Coal Co.	156,967
Buck Ridge Coal Co.	127,743
Trevorton Colliery Co.	60,198
Total	2,523,278

SEVENTEENTH.

Lehigh Coal & Navigation Co.	3,009,722
Estate of A. S. Van Wickle	328,582
Beddell Bros. & Co.	208,613
Coxe Bros. & Co., Inc.	201,415
Lehigh Valley Coal Co.	117,997
Evans Colliery Co.	23,885
Moses Neyer	7,167
Hacklebernie Coal Co.	6,566
Total	3,908,947

EIGHTEENTH.

Mill Creek Coal Co.	579,147
Phila. & Reading C. & I. Co.	484,925
Lehigh & Wilkes-Barre Coal Co.	412,478
Coxe Bros. & Co., Inc.	233,005
Dodson Coal Co.	225,906
Maryd Coal Co.	207,375
Truman M. Dodson Coal Co.	196,654
Big Creek Coal Co.	90,431
Phillips Coal Co.	51,272
East Lehigh Coal Co.	45,408
Port Carbon Coal Co.	28,817
Gorman & Campion	12,888
William Cooke	4,582
Total	2,572,378

NINETEENTH.

Phila. & Reading C. & I. Co.	1,087,900
St. Clair Coal Co.	426,589
Lytle Coal Co.	317,966
Pine Hill Coal Co.	263,074
Oak Hill Coal Co.	241,712
Buck Run Coal Co.	175,750
Mt. Hope Coal Co.	83,467
Darkwater Coal Co.	58,549
John H. Davis Coal Co.	29,153
Butcher Creek Coal Co.	25,028
E. White & Co.	1,098
Total	2,710,292

TWENTIETH.

Phila. & Reading C. & I. Co.	1,346,529
Summit Branch Mining Co.	832,494
Lehigh Valley Coal Co.	1,979
Total	2,181,002

COMPANIES HAVING OPERATIONS IN TWO OR MORE DISTRICTS.

Phila. & R. C. & I. Co.	Dela. & Hudson Co.	Hudson Coal Co.
12th	1st	3rd
13th	2nd	5th
14th	4th	6th
15th	6th	Lehigh & W.-B. C. Co.
16th	7th	7th
18th	9th	9th
19th		10th
20th		18th

Lehigh Valley Coal Co.	D. L. & West. RR. Co.	Hillside C. & I. Co.
6th 500,982	2nd 456,847	1st 643,966
7th 1,569,610	3rd 1,106,251	5th 223,754
8th 1,368,524	4th 3,325,427	6th 456,479
11th 600,497	5th 779,570	Kingston Coal Co.
12th 151,677	8th 42,594	8th 605,954
13th 379,741	9th 1,196,001	9th 1,431,631
14th 624,753	10th 1,135,348	Susquehanna Coal Co.
15th 279,538	Temple Iron Co.	10th 1,321,625
17th 177,987	1st 829,732	13th 236,940
20th 1,979	8th 927,179	Coxe Bros. & Co., Inc.
Pennsylvania Coal Co.	Scranton Coal Co.	11th 596,183
3rd 824,302	1st 481,350	17th 201,415
5th 1,131,513	2nd 1,000,817	18th 233,005
6th 2,877,624	3rd 655,635	Mineral RR. & Mining Co.
	4th 209,178	15th 772,252
		16th 808,278

Total shipments of leading companies reported elsewhere in this book.

NOVA SCOTIA COAL OUTPUT.

Production and sales by companies for years ending September 30, 1908, and 1909, as reported by the Department of Mines:—

Company.	Place.	Production 1908.	Sales 1908.	Production 1909.	Sales 1909.
Dominion Coal Co.....	Glace Bay	3,816,958	3,386,333	2,785,318	2,576,004
N. S. S. & C. Co.....	Sydney Mines ...	662,350	613,295	757,539	688,058
Acadia Coal Co.....	Stellarton	413,782	330,757	364,993	280,937
Cumb. Ry. & C. Co.....	Springhill	416,132	337,175	376,283	301,587
Intercolonial C. Co.....	Westville	315,590	263,817	292,479	253,716
Inver. Ry. & C. Co.....	Inverness	283,704	244,690	267,773	221,287
Pt. Hood Rich. C. Co..	Port Hood	99,700	82,202	96,133	76,899
N. S. S. & S. Co.....	Marsh Mine	47,845	41,886	20,165	17,120
Minudie Coal Co.....	River Hebert ...	48,397	38,744	49,791	41,454
Strathcona Coal Co.....	River Hebert ...	23,928	20,447	7,086	6,065
Mabou & Gulf C. Co...	Mabou Mines' ...	19,250	9,087	1,610	10
Sydney Coal Co.....	North Sydney ...	4,801	4,607	4,733	4,937
Total		6,299,282	5,485,583	5,217,915	4,615,713

During the year 1909 the following companies produced 197,012 tons, and their sales amounted to 158,765 tons: Maritime C. & Ry. Co., McKay Mining Co., North Atlantic Collieries, Great Northern Coal Co., Atlantic Grindstone & Coal Co., Colchester Coal Co., Eastern Coal Co., and Colonial Mining Co.

LAKE SUPERIOR ORE TRADE.

SHIPMENTS BY PORTS AND ALL-RAIL, GROSS TONS.

Port of origin.	1904.	1905.	1906.	1907.	1908.	1909.
Escanaba	3,644,267	5,307,938	5,851,050	5,761,988	3,351,502	5,747,301
Marquette	1,907,301	2,977,828	2,791,033	3,013,826	1,487,487	2,909,451
Ashland	2,288,400	3,485,344	3,348,106	3,436,967	2,513,670	3,334,207
Two Harbors	4,566,542	7,779,850	8,180,125	8,188,906	5,702,227	9,181,132
Gladstone	553					
Superior	4,169,990	5,118,385	6,083,057	7,440,386	3,564,030	6,540,505
Duluth	4,649,611	8,807,559	11,220,218	13,448,736	8,808,168	13,470,503
Total by lake	21,226,664	33,476,904	37,513,589	41,288,755	25,427,094	41,683,599
Total by rail	622,737	907,212	1,052,173	975,959	587,893	903,270
Total	21,849,401	34,384,116	38,565,762	42,266,668	26,014,987	42,586,869

Figures furnished by 'Marine Review.'

WEST VIRGINIA.

The State of West Virginia is always prominent in the consideration of trade affairs by reason of the large and constant increase in its production, naturally coupled, as it is, with activity on the part of the tonnage producers of the State. Paying a low mining rate, coal can be shipped at the great majority of operations at a lower price than inferior tonnage from other sections can be turned out, so that West Virginia coal, usually, is sent out to the full extent of the carrying capacity of the various railroads serving the coal fields of the State.

The coal territory of West Virginia is naturally divided into three prominent fields; the Northern, the New River-Kanawha and the Pocahontas. The Northern field comprises the Fairmont and Upper Potomac districts, served respectively by the Baltimore & Ohio and the Western Maryland RRs. The New River and Kanawha fields, with their tributary districts, are served by the Chesapeake & Ohio, the Kanawha & Michigan and the Virginian Rys. The Pocahontas field, with its several subordinate districts, is served by the Norfolk & Western and, to a slight extent, by the Virginian Ry.

Development is constantly in progress, spreading out to new scenes of activity, and the recent construction of the Virginian Ry., by which access is afforded to sections of the New River and Pocahontas fields not heretofore accessible, will no doubt mean much in the increase of tonnage in future years.

Production of coal by counties, net tons, in the years named, was:—

County.	1904.	1905.	1906.	1907.	1908.
Barbour	666,019	615,437	993,681	1,175,763	1,023,029
Brooke	67,706	239,396	483,256	454,119	433,373
Clay	55,814	80,424	79,385	63,747	6,622
Fayette	7,222,247	7,985,327	8,285,462	8,599,978	7,663,561
Grant	199,812	207,926	297,026	312,407	217,074
Hancock	79,528	57,683	70,251	87,100	85,631
Harrison	2,714,832	2,850,678	3,626,337	3,939,965	3,262,637
Kanawha	3,134,256	3,973,717	4,880,307	5,588,074	4,630,548
Logan	326	223,319	592,895	1,248,522	1,683,456
McDowell	6,755,138	8,245,167	8,707,677	9,840,975	8,601,802
Marion	3,407,469	3,621,219	4,163,462	4,228,231	3,922,398
Marshall	398,591	438,773	511,335	612,605	259,769
Mason	117,437	95,786	112,660	150,726	119,723
Mercer	1,917,065	2,269,076	2,199,830	2,344,426	2,088,343
Mineral	569,649	575,294	661,938	746,668	696,226
Mingo	1,469,710	1,679,526	2,210,276	2,229,436	1,800,589
Monongalia	200,567	218,360	328,408	424,997	224,955
Nicholas	38,452	58,179	79,635	82,246	41,629
Ohio	120,845	109,201	121,464	187,545	145,987
Preston	665,626	837,666	1,129,344	1,286,535	659,348
Putnam	386,840	548,767	548,725	437,073	532,446
Raleigh	591,794	827,868	1,080,163	1,412,393	1,622,161
Randolph	379,622	517,078	387,762	671,417	361,851
Taylor	283,332	348,105	445,427	475,237	489,069
Tucker	1,126,883	1,095,059	1,199,041	1,217,267	980,425
Others, etc.	33,582	72,549	94,603	274,131	345,191
Total	32,602,819	37,791,580	43,290,350	48,091,583	41,897,843

The tonnage produced has been as follows in the years named:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	16,700,999	1902.....	24,570,826	1906.....	43,290,350
1899.....	19,252,995	1903.....	29,337,241	1907.....	48,091,583
1900.....	22,647,207	1904.....	32,602,819	1908.....	41,897,843
1901.....	24,068,402	1905.....	37,791,580	1909.....	47,376,000

Amounts are in net tons of 2,000 pounds. Figures for calendar years. A list of large producers in the State will be found on pages 17, 18 and 19. The amount of coal produced in this State for the fiscal year ending June 30, 1909, was 46,697,017 net tons. Estimate of 1909 coal production, calendar year, 42,300,000 gross tons.

In the past few years the output has increased at a rapid rate, due to excellent railroad facilities, as well as to the fact that labor is largely non-union and employed more continuously than in some other States.

PRODUCTION BY DISTRICTS.

By geographical districts, the coal produced in the fiscal year ending June 30, 1909, was stated by the Chief Mine Inspector to be as follows: Potomac district, 1,928,937; Monongahela district, 9,326,064; Wheeling district, 888,578; Kanawha-New River district, 14,136,752; Norfolk & Western district, 15,079,595; Interior district, 153,840. Total, commercial mines, 41,513,766; small mines, 180,000. Grand total, 41,693,766 gross tons.

The Geological Survey reports following figures for calendar years, and statement below is interesting as showing the growth in these districts:—

Year.	N. R.-Kan.	Pocahontas.	Fairmont.	Elk Garden.
1903	9,843,063	8,319,775	5,638,337	2,229,065
1904	11,429,403	11,013,059	7,937,845	1,896,344
1905	13,474,282	13,378,468	8,491,465	1,878,279
1906	14,953,677	14,621,316	10,686,659	2,158,005
1907	16,183,511	16,779,893	11,530,728	2,276,342
1908	14,496,967	15,154,204	9,581,436	1,893,725

The distribution of coal mined was, by same authority, as below:—

Year.	Shipment.	Local.	At mines.	For coke.	Total.
1903	24,056,649	584,927	473,780	4,221,885	29,337,241
1904	28,039,230	609,560	424,637	3,529,402	32,602,819
1905	31,159,464	682,448	524,517	5,425,151	37,791,580
1906	36,389,483	633,487	589,844	5,677,536	43,290,350
1907	39,942,715	932,652	773,526	6,442,690	48,091,583
1908	36,440,822	641,527	805,012	4,010,482	41,897,843

RAILROAD TONNAGES.

The railroad facilities, the Norfolk & Western, the Kanawha & Michigan, the Chesapeake & Ohio, the West Virginia Central (West. Md.), and the Baltimore & Ohio for their respective sections, while large, are said to be quite below the tonnage requirements in normal years, owing to the increasing demand for the excellent domestic and steam coal produced in this State. Therefore, the new facilities of the Virginian Ry. serve a useful purpose, and do not encroach on the business of the other roads.

The coal tonnage of the Chesapeake & Ohio Ry. for the fiscal years named was as follows, in net tons:—

Detail.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
To tidewater	3,324,703	3,594,858	3,760,573	4,600,883
To other points and roads east. .	1,652,922	1,817,678	1,537,377	1,516,730
To other points and roads west. .	4,088,378	4,969,203	5,054,916	6,280,024
From connections	517,286	408,226	171,516	289,232
Grand total	9,583,289	10,744,965	10,524,382	12,406,928

For the calendar years named the tonnage was:—

Detail.	Tons 1907.	Tons 1908.	Tons 1909.
To tidewater	3,829,391	3,997,121	4,985,426
To other points and roads east	1,954,543	1,506,553	1,897,470
To other points and roads west	5,596,470	5,243,290	6,884,105
From connections	307,225	233,433	195,035
Grand total net tons	11,687,629	10,980,397	13,962,036
Source of supply.	1907.	1908.	1909.
From New River district	6,208,914	6,080,035	7,773,726
From Kanawha district	4,912,522	4,379,515	5,615,214
From Kentucky district	258,968	287,414	378,061
From connections	307,225	233,433	195,035
Total, all sources	11,687,629	10,980,397	13,962,036

The road, serving the well-known New River field, as well as the Kanawha district and other coal fields further west, reports a rapidly growing tonnage. There are now no less than 71 coal mining companies on the line of this road turning out more than 40,000 tons per annum, the tonnage ranging from this amount up to 1,800,000 tons or more.

The coal tonnage of the Norfolk & Western Ry. for three years specified was as follows, in net tons:—

	Tide			Line		
	1907.	1908.	1909.	1907.	1908.	1909.
Coal	2,525,267	2,400,226	3,228,854	9,859,376	8,807,717	10,852,858
Coke	141,400	126,743	97,449	2,381,819	1,827,126	2,541,591
Total	2,666,667	2,526,667	3,326,303	12,241,195	10,634,843	16,720,752

The above figures cover the calendar years ending with December 31st.

The shipments of coal over this line from the various districts during the year 1909 were:—

From	Commercial.	Company
Pocahontas field	8,447,301	1,087,388
Tug River field	1,379,305	99,980
Thacker field	1,300,451	449,893
Kenova field	583,859	159,993
Clinch Valley field	528,230	51,113
Total	12,163,553	1,918,369

This line draws coal from the celebrated Pocahontas territory, together with tonnage from the Clinch Valley field and certain outlying sections bearing various local names. The increase of business from this field has been very notable in the past ten years or more, and we find that there are now 78 operators having an output of more than 40,000 tons per year making shipments over this road, the respective outputs running from this figure up to 1,712,571 tons.

The Elk Garden district, served by the West Virginia Central & Pittsburgh Ry., was opened up in 1888, with 561,397 gross tons. It has advanced to over 2,500,000 tons. This coal is largely the product of one company, as will be seen from the details of last year's output:—

Davis C. & C. Co., 2,018,296 tons; Cumberland Coal Co., 141,522 tons; Junior Mine, 7,283 tons; Masteller Coal Co., 39,308 tons; Harding Mine, 104,548 tons; Shaw Mine, 13,671 tons; Dodson Mine, 86,866 tons; Blaine Mining Co., 185,461 tons. Total for Elk Garden district in 1909, as reported in gross tons by C. & P. RR., was 3,047,551 tons, as against 2,473,142 tons in 1908.

Kanawha River tonnage in calendar year 1905, was 1,317,960 net tons, and for

1906, 1,113,410 net tons; 1907, 1,648,761 net tons; 1908, 955,384 net tons; 1909, 1,065,680 net tons.

COKE PRODUCTION OF WEST VIRGINIA.

The coke production is shown in the following statistics: 1898, 1,925,071 tons; 1903, 2,707,818 tons; 1904, 2,283,086 tons; 1905, 3,400,593 tons; 1906, 3,713,514 tons; 1907, 4,112,896 tons; 1908, 2,452,609 tons, and 1909,

The coke was produced in these divisions in the years 1904-1908:—

District.	1904.	1905.	1906.	1907.	1908.
Flat Top	1,320,314	2,042,123	1,912,595	2,193,064	1,901,481
Kanawha	92,014	249,251	358,903	451,043	428,046
New River	233,014	301,626	240,474	248,346	
Upper Monongahela	328,820	389,213	659,427	698,345	499,507
Up. Potomac and Ty. Valley.	308,924	418,380	542,115	522,098	149,229
Total, net tons.....	2,283,086	3,400,593	3,713,514	4,112,896	2,978,263

Details by districts for the year 1909 are not yet available.

The production of coke for fiscal year 1909 was 3,115,797 tons, and 3,987,206 tons for the calendar year.

The amount of coke transported over the West Virginia roads during the calendar year 1909, was: Baltimore & Ohio, 547,276; Chesapeake & Ohio, 471,000; Norfolk & Western, 2,253,358; Kanawha & Michigan, 209,400; Western Maryland, 232,232; Virginian, 200,000; Coal & Coke, 73,940; making a total of 3,987,206 net tons.

After Pennsylvania this is the most important coke producing state in the Union, and the product is very well regarded in the western markets, to which it is principally shipped. In the Pocahontas or Flat Top district, particularly, there is a large coke production, this having been stimulated by reason of efforts made years ago to dispose of the slack by making it into coke. Next in order of importance is the coke tonnage from the Upper Monongahela or Fairmont territory.

EXPORT TRADE; PRESENT AND PROSPECTIVE.

Baltimore and Hampton Roads ports offer the cheapest and most available points of shipment for export trade—both from cost and quality. The first named port is doing a very fair amount of foreign tonnage, principally to the West Indies and Mexico, and this is growing. Talking about trade to Mexico, it is also one of the interesting features noted, that there is to be a large tonnage of Alabama coal sent all-rail to Mexican railroad points of use. This is likely to develop into a very considerable monthly tonnage, not only for railroad use, but also for the industries which are developing the Republic. With the higher cost of British coal, destined to rule in the future, there will be all the greater tonnage of American coal to the West Indies, Mexico and South America.

The success of the Philadelphia & Reading Ry. Co. under the new regime has been largely due to the development of bituminous coal and general merchandise traffic in the past ten or 12 years. This had added largely to the density of traffic movement and has tended to create west-bound as well as east-bound tonnage, with resulting advantage to the company.

VIRGINIA.

The tonnage has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	1,815,274	1902.....	3,182,993	1906.....	4,254,879
1899.....	2,105,791	1903.....	3,451,307	1907.....	4,710,895
1900.....	2,393,754	1904.....	3,410,914	1908.....	4,259,042
1901.....	2,725,873	1905.....	4,275,271	1909.....	4,700,000

There was the following use made of the coal produced in recent years:

Year.	Shipped.	Local.	At Mines.	For Coke.	Total.
1904.....	1,729,840	40,985	63,085	1,577,004	3,410,914
1905.....	2,010,988	59,086	87,433	2,118,664	4,275,271
1906.....	1,940,524	50,275	91,666	2,172,414	4,254,879
1907.....	2,539,806	78,704	96,653	2,175,732	4,710,895
1908.....	2,344,308	67,900	110,671	1,736,163	4,259,042

The importance of this State as a coal producer dates from 1883. Prior to that year comparatively little coal was mined in Virginia, the yearly output being something less than 50,000 tons; but during that year what is now known as the Pocahontas Flat Top coal region was opened up by the extension of the Norfolk & Western Ry. to that portion of the State. The older mines are located in Tazewell County (and also in Mercer and McDowell Counties, W. Va.), and radiating from a point, say, 376 miles from Norfolk, are a number of laterals to these mines the output of which passes over the road named, for sale and shipment.

The Pocahontas field extends over parts of Tazewell, Russell, Buchanan, Dickinson, Wise and Scott Counties. The largest operations are in Tazewell County, and until 1892 practically all of the product was from this county. In 1892, however, the Wise County deposits were opened up by the extension through them of the Clinch River division of the Norfolk & Western Ry.

The extreme southwestern portion of the State is being developed at a rapid pace by operations on the line of the Louisville & Nashville and the Virginia & Southwestern, which is a portion of the Southern system, as well as by new operations of the Clinchfield Coal Corporation at the extreme southerly end of the Clinch Valley, the latter being the most comprehensive scheme of coal development recently exploited in this State or neighboring territory. The tonnage thereof will have outlet by the Carolina, Clinchfield & Ohio Ry.

Singular as it may seem, the southwesterly part of Virginia extends to such a distance from Richmond and the tidewater section that the coal and coke of Wise and Lee Counties obtains easy access to the markets at Cincinnati, Louisville and points beyond, and in the southern and western trade this product is very well regarded.

As showing the growth of the tonnage from the several counties the statement below is of interest:—

Counties.	1903.	1904.	1905.	1906.	1907.	1908.
Tazewell	840,195	871,720	961,380	910,638	1,116,534	980,014
Wise	2,563,285	2,514,133	2,990,698	3,041,228	3,145,846	2,558,874
Pulaski, etc.	27,339	176,433	325,073	303,016	448,515	720,154

The first systematic coal mining in the United States was carried on in the Richmond, or Henrico County coal field. In 1822 54,000 tons were produced here, 12 times the amount of coal shipped out of the Pennsylvania anthracite region in that year. The maximum production of the field was

in 1833, when 142,587 tons of coal were shipped. Output now, about 2,000 tons.

The State of Virginia has no bureau of mines, nor any official charged specifically with the supervision of coal mines, and, aside from the reports of the Geological Survey, the only data obtainable concerning production is an estimate based upon information received from certain of the larger producers.

According to estimates by M. R. Campbell, of the United States Geological Survey, the areas containing workable coals in the southwestern part of Virginia cover about 1,550 square miles, and the original contents amounted to 21,000,000,000 tons. The Brushy Mountain field, in Montgomery County, is estimated at 200 square miles in area, with 900,000,000 tons. The Richmond Basin is estimated to cover 150 square miles, with 600,000,000 short tons. The total coal area is, therefore, 1,900 square miles, and the original contents were approximately 22,500,000,000 short tons. From this stock there had been mined, to the close of 1908, 61,488,194 short tons, equivalent to an exhaustion of approximately 92,000,000 short tons, or 0.4 per cent. of the original supply.

WYOMING.

The tonnage in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	2,863,812	1902.....	4,429,491	1906.....	6,133,994
1899.....	3,837,392	1903.....	4,635,293	1907.....	6,252,990
1900.....	3,941,590	1904.....	5,178,556	1908.....	5,489,902
1901.....	4,382,997	1905.....	5,602,021	1909.....	6,419,567

Progress of coal production in this State, by counties, as compiled from official resources, has been as follows:—

County.	1904.	1905.	1906.	1907.	1908.	1909.
Carbon	336,292	354,358	450,636	583,402	543,009	598,013
Converse	77,386	64,939	69,495	48,700	32,745	50,000
Sheridan	554,785	742,314	1,014,318	1,226,221	839,533	855,000
Sweetwater	1,992,993	2,113,979	2,121,545	2,071,842	2,180,933	2,683,935
Uinta	1,800,069	1,897,668	2,078,772	1,889,742	1,380,488	1,711,871
Weston	398,367	409,690	379,990	361,015	337,815	355,000
Bighorn	6,235	4,605	4,743	56,966	101,275	105,000
Other counties ...	18,664	14,468	14,494	15,102	74,104	60,748
Totals	5,178,556	5,602,021	6,133,994	6,252,990	5,489,902	6,419,567

The coal tonnage of this State is used almost exclusively for railroad purposes. This is perhaps more noticeable than in any other State. The Union Pacific and Burlington are both interested in coal mining enterprises of the most important character.

The estimate of the original coal supply of Wyoming, as made by the United States Geological Survey, credited that State with the largest original supply, with the single exception of North Dakota, which is estimated to have contained originally 500,000 million tons of coal. The areas of North Dakota are, however, entirely of lignite, while in Wyoming the coal is either of bituminous or of sub-bituminous character. Wyoming's supply is estimated to have been 424,085 million tons, compared with which the aggregate production to the close of 1908 (83,308,667 tons) appears insignificant. The total exhaustion of the beds up to the close of 1908 amounted to 125 million tons, or 0.029 per cent. of the total estimated supply.

NOVA SCOTIA COAL SHIPMENTS.

Shipments of principal Nova Scotia mining companies for the calendar years:—

Company.	1905.	1906.	1907.	1908.	1909.
Dominion Coal Co.	2,913,495	3,131,000	3,072,676	3,243,007	2,469,493
Nova Scotia Stl. & Coal Co..	535,990	658,000	626,071	644,338	785,015
Cumberland Ry. & Coal Co..	417,821	379,557	280,474	362,339	216,325
Acadia Coal Co.	257,698	275,000	312,687	320,122	278,131
Intercolonial Coal Co.	208,349	280,000	274,524	244,897	249,218
Inverness Ry. & Coal Co....	132,804	167,974	225,517	256,910	230,752

Growth of shipments in recent years is shown below:—

Year.	Shipments.	Year.	Shipments.	Year.	Shipments.
1889.....	1,755,107	1896.....	2,947,133	1903.....	4,586,649
1890.....	1,786,111	1897.....	2,013,421	1904.....	4,622,823
1891.....	1,849,945	1898.....	2,135,397	1905.....	4,682,000
1892.....	1,752,934	1899.....	2,650,000	1906.....	5,170,000
1893.....	1,965,891	1900.....	3,013,638	1907.....	5,730,660
1894.....	2,019,742	1901.....	3,486,100	1908.....	5,372,478
1895.....	1,831,357	1902.....	4,273,540	1909.....	4,597,677

GIRARD ESTATE COAL ROYALTIES.

The Girard Estate is unique. It is not administered by private trustees for the benefit of Philadelphia, but the city itself is the executor, and acting through a Board of City Trusts the affairs of the estate are conducted after the manner of a Government department. All transactions are public and some interesting coal trade figures are thereby made available. For instance, the matter of royalty is often referred to, but most royalty arrangements between other parties are confidential. Here, however, are some figures showing the Girard Estate royalties:—

	1908.	1907.	1906.	1905.	1904.	1903.
On all coal produced	28.79	29.77	29.30	29.98	28.16	23.54
On coal shipped to market	31.99	32.67	32.47	33.07	31.59	26.44
On coal freshly mined shipped to market	34.17	34.25	34.21	34.14	34.02	31.47
On coal from culm banks shipped to market	16.84	19.03	19.49	21.04	17.64	15.07

The tonnage figures of the Maryland coal output which appear on another page, have been based on the shipments over the Cumberland & Pennsylvania RR. with an additional amount of several thousand tons added, on account of coal from other mines, country banks, etc. Apparently there is a considerably larger tonnage now carried over the Georges Creek & Cumberland than in former years, and the total output for the State should be put down as that appearing in the table on page four.

During the year 1909, the output of coal in France amounted to 37,253,205 metric tons, and of lignite 718,553 metric tons, a total of 37,971,758 tons of 2,200 pounds.

OSWEGO, CHARLOTTE, SODUS POINT, FAIR HAVEN.

These are the loading points on Lake Ontario for a certain amount of coal for Canada, and yet the tonnage does not increase at all, probably because of the all-rail facilities for reaching Canadian points.

Shipments in recent years have been:—

	1903.	1904.	1905.	1906.	1907.	1908.	1909.
Oswego	556,328	576,554	668,236	560,674	698,427	423,086	528,572
Charlotte	560,081	600,000	583,180	432,238	719,187	456,382	520,631
Fair Haven ..	99,215	125,730	95,306	94,635	87,547	115,792	83,949
Sodus Point ..	9,323	29,300	26,000	30,000	60,471	58,076	30,711
Total	1,224,947	1,331,584	1,372,722	1,117,547	1,565,632	1,053,336	1,163,863

Of the tonnage shipped from the above ports during the year 1909, the amount of anthracite from Oswego was 528,572; Fair Haven, 76,667. The balance of the totals was bituminous.

The domestic shipments, 1908 and 1909, were as follows:

	Anthracite		Bituminous		Total	
	1908.	1909.	1908.	1909.	1908.	1909.
Oswego	177,693	126,408	3,048	.....	180,741	126,408
Charlotte .....	.....	.....	165,698	243,477	165,698	243,477
Fair Haven .....	.....	11,780	.....	.....	.....	11,780
Sodus Point .....	.....	.....	.....	4,170	.....	4,170

All other shipments are foreign, i. e., to Canada.

NOVA SCOTIA COAL SALES.

The returns of Nova Scotia coal sales for the year 1909 show, when compared with previous years, as follows:—

Destination.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Nova Scotia	1,651,735	1,962,206	1,842,419	1,950,631	1,769,802
New Brunswick	411,969	434,882	427,128	510,330	542,827
Prince Edward Island	75,136	76,809	77,493	63,330	78,897
Newfoundland	138,120	149,506	146,502	207,062	156,248
Quebec	1,492,399	1,739,308	1,709,592	2,047,638	1,508,817
West Indies	2,524	.....	2,598	.....	.....
United States	652,538	769,775	616,313	499,634	320,735
Other countries	50,863	62,104	12,483	13,604	10,990
Total, tons of 2,240 lbs. .	4,475,284	5,194,590	5,046,690	5,485,583	4,615,713

In 1909 there were 227,394 tons of bunker coal sold.

CANADA'S COAL REQUIREMENTS.

Production 1909, 10,411,955 tons; imported 1909, 10,372,924 tons. Total, 20,784,879 tons.

Exported from British Columbia (1909), 761,885 tons; exported from Nova Scotia (1909), to the United States, 320,735 tons; shipping Newfoundland and elsewhere, 666,575 tons; total, 1,749,197 tons.

Coal used in Canada, 19,035,662 tons.

The consumption of coal at the collieries in Nova Scotia during the past eleven years express the fact that the mines are larger, requiring more ventilation, haulage and pumping and that labor saving machinery is more extensively employed. Tonnage used 1909 was 451,589, as against 124,280 in 1899.

THE LARGER PRODUCERS OF COAL IN WEST VIRGINIA.

TONNAGE PRODUCED IN YEAR ENDING JUNE 30, 1909. ALL GROSS TONS.

POTOMAC DISTRICT.

Counties of Grant, Mineral and Tucker.

Davis C. & C. Co.....	1,614,146
Cumberland Coal Co.....	133,460
Gleason C. & C. Co.....	42,000
Abrams Creek C. & C. Co....	31,327
Masteller Coal Co.....	30,134
Small mines	79,864
Total	1,928,937

Midland C. & C. Co.....	44,617
Kingwood Coal Co.....	43,434
Grafton Fuel Co.....	40,300
McGraw Coal Co.....	40,117
Small mines	549,197
Total	9,326,064

WHEELING DISTRICT.

Counties of Brooke, Hancock, Marshall and Ohio.

La Belle Iron Works.....	150,927
Hitchman C. & C. Co.....	132,049
Lewis-Findley Coal Co.....	102,221
Beech Bottom C. & C. Co....	93,624
Richland Coal Co.....	89,285
Wheeling Steel & Iron Co..	57,053
La Belle Coal Co.....	53,826
The Marquet Coal Co.....	46,756
Rex Carbon Coal Co.....	44,641
Whitaker Glessner Co.....	33,255
Small mines	84,941
Total	888,578

MONONGAHELA DISTRICT.

Counties of Barbour, Harrison, Marion, Monongalia, Preston, Randolph, Taylor and Upshur.

Fairmont Coal Co.....	3,400,734
Clarksburg Fuel Co.....	439,498
George's Creek C. & I. Co...	428,119
Virginia & Pitts. C. & C. Co.	345,127
The Century C. Co.....	333,250
Elkins C. & C. Co.....	298,218
Davis Colliery Co.....	274,591
Federal C. & C. Co.....	267,745
New Central C. Co.....	265,142
Davis C. & C. Co.....	233,159
Pittsburgh & Fairmont F. Co.	223,375
Madeira-Hill-Clark Coal Co.	217,365
Rosemont Coal Co.....	160,240
Hutchinson Fuel & Sup. Co.	152,509
Meadow Brook C. & C. Co.	138,767
Austen C. & C. Co.....	99,948
Va-Maryland Coal Corp.....	87,547
Cook C. & C. Co.....	86,867
Connellsville Basin Coke Co.,	85,496
Irona Coal Co.....	83,062
Pitcairn Coal Co.....	81,303
Marshall Coal Co.....	79,374
Corona C. & C. Co.....	78,863
Grafton C. & C. Co.....	75,000
Preston County Coke Co.....	71,543
Fairmont & Balto. Coal Co.,	63,228
Short Line Coal Co.....	60,142
O'Gara C. M. Co.....	59,278
Maryland Coal Co.....	58,989
Harry B. Coal Co.....	55,726
Monroe Colliery Co.....	53,248
Vincent Coal Co.....	52,981
Central Fairmont Coal Co...	52,678
Orr C. & C. Co.....	48,993
Red Rock Fuel Co.....	48,586
Merchants Coal Co.....	47,908

KANAWHA—NEW RIVER DISTRICT.

Counties of Clay, Fayette, Kanawha, Lincoln, Mason, Nicholas, Putnam and Raleigh.

The New River Co.....	1,804,568
Sunday Creek Co.....	925,498
Cabin Creek Con. Coal Co..	861,165
New River Collieries Co....	645,132
Boomer C. & C. Co.....	623,880
N. Riv. & Pocah. Con. C. Co.	615,133
McKell C. & C. Co.....	512,787
Paint Creek Collieries Co..	481,458
Raleigh C. & C. Co.....	367,908
West Virginia Colliery Co..	238,770
Campbells Creek Coal Co...	210,081
Loup Creek Colliery Co.....	203,018
Piney Mining Co.....	191,406
Kelly's Creek Colliery Co..	187,004
Low Moor Iron Co. of Va...	183,455
Wyatt Coal Co.....	169,595
Big Coal Co.....	166,312
Republic Coal Co.....	163,798
Otto-Marmet C. & M. Co....	149,452
Ephriam Creek C. & C. Co.	146,916
Carbon Coal Co.....	140,086
Keeneys Creek Colliery Co..	140,000
Chesapeake Mining Co.....	135,928

War Eagle Coal Co.....	105,635	Buffalo Collieries Co.....	73,779
Oregon Coal Co.....	101,549	Twin Branch Mining Co...	72,621
Roanoke C. & C. Co.....	99,672	Hiawatha C. & C. Co.....	70,805
Zenith C. & C. Co.....	92,680	Pawama C. & C. Co.....	67,708
Weyanoke C. & C. Co.....	89,944	Hall Mining Co.....	64,421
Howard Colliery Co.....	86,579	Black Wolf C. & C. Co.....	60,364
The Gay C. & C. Co.....	84,823	Margaret Mining Co.....	60,000
Jed C. & C. Co.....	83,000	Small mines	1,342,358
Chattaroy Colliery Co.....	82,771	Total	15,079,595
Draper C. & C. Co.....	76,007		

MEXICO'S COAL OUTPUT, 1909.

Official figures showing the coal output of Mexico for the year 1909 are now available. All of the working mines are situated in the State of Coahuila, although there are said to be extensive undeveloped coal fields in other parts of the republic.

The reports of the different mines show that a total of 919,338 metric tons of coal were produced in Mexico during that period. It is estimated that this will be increased to more than 1,100,000 metric tons during the present year. The commercial tonnage, or coal that was used in the smelters, manufacturing plants and for domestic purposes, amounted to 381,331 tons for 1909 and the railroad tonnage 538,067 tons.

The coal produced in the Coahuila fields is of the coking grade, and from it there was manufactured during 1909 a total of 150,000 tons of coke. Preparations are being made to greatly increase the coke output, and it is expected that the production for the present year will exceed 250,000 tons. Several of the new concerns operating in the coal fields at Sabinas and Rio Escondido only recently began to burn coke. Three companies are building the new type of retort ovens, which will make coke in 48 hours, against the 72 hours required by the old process. It is announced that the Mexican C. & C. Co., an American concern, will have fifty of these ovens completed and in operation in March. The Lampacitos Coal Co. is erecting 30 of the ovens, and the Rosita Coal Co. will soon have 60 of them. In the Cleote district a battery or 60 beehive coke ovens was finished in October and a secondary plant of 60 more ovens is now being installed.

It is claimed that at the present rate of development of the industry it will be only a few more years when it will not be necessary to import these products from the United States, as the home supply will be ample for the demand.

THE COAL IMPORTS OF CHILE.

U. S. Consul Alfred A. Winslow, at Valparaiso, says concerning the coal trade of Chile that there is a most excellent opening there for American coal, as about 1,500,000 tons of foreign coal are consumed yearly in Chile, of which England and Australia supply the greater part. The price on shipboard in Chile varies from \$6.56 to \$9.24 per ton. Much complaint is heard because of the poor condition in which American coal arrives. Consumers say it is too fine and that it crumbles too easily, even though it arrive in lumps, and it does not stand handling. In 1908 the imports from the United States were 9,691 tons in a total import of 1,599,614 tons, of which 544,018 tons were landed at the port of Valparaiso. There is no duty on coal in Chile.

TENNESSEE.

The principal mining activity in Tennessee is in the northeastern section, and the well known Jellico field is a source of coal supply for a large portion of Kentucky, Tennessee and other southern States. New railroad development east of Nashville and north of Chattanooga has opened up a considerable territory in recent years.

The tonnage has been as follows:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898	3,022,896	1902	4,382,968	1906	6,259,275
1899	3,376,134	1903	4,798,004	1907	6,810,243
1900	3,904,048	1904	4,782,211	1908	6,199,171
1901	3,633,290	1905	5,963,396	1909	6,400,000

It will be seen that tonnage has increased practically 100 per cent. in the last ten years, and Tennessee coal is being shipped to more distant points as time goes by. In addition to the heavy business done in Kentucky and Tennessee, as referred to in our opening paragraph, this coal finds a market in Atlanta and points further to the southeast in Georgia and Florida, notwithstanding the longer haul as compared with the product of mines in the Birmingham district. To the west and southwest it is sold nearly as far distant as the Mississippi River.

In this State the mining industry is not dominated by any single company or group of companies, but there are a considerable number of concerns of moderate or small tonnage. Owing to the popularity of the name Jellico in the southern fuel trade, many of them include this word in their corporate title, causing an apparent similarity that is rather confusing in some cases.

Owing to limited appropriation, mine inspection and statistical work is generally much in arrears, and we are not able to present detailed figures for a later date than 1908.

Production by counties, in six years, was as below:—

Counties.	1903.	1904.	1905.	1906.	1907.	1908.
Anderson	655,721	630,109	845,778	763,834	851,943	854,197
Campbell	700,368	804,750	1,080,540	1,282,017	1,400,000	1,584,543
Claiborne	784,628	961,255	1,020,453	1,099,747	1,147,900	1,158,166
Cumberland	134,093	91,718	35,052	64,247	86,362	22,617
Grundy	466,642	357,219	566,888	449,367	564,591	572,101
Hamilton	264,268	252,735	296,445	316,532	382,044	58,743
Marion	439,784	388,605	416,768	389,525	401,416	392,166
Morgan	524,485	484,232	620,587	615,705	639,207	585,134
Overton	83,340	106,403	84,493	81,603	74,734	46,078
Rhea	231,689	204,992	240,590	264,918	242,421	173,719
Roane	129,480	98,519	122,403	158,421	170,748	162,669
Scott	142,424	123,478	191,258	168,203	197,165	128,437
White	167,900	149,286	309,233	438,602	425,368	326,729
Other counties and small mines..	73,182	128,910	132,908	166,464	226,324	133,872
Total	4,798,004	4,782,211	5,963,396	6,259,275	6,810,243	6,199,171
Coke output	546,875	379,240	450,000	483,428	467,499	214,528

Estimated coke production in 1909, 300,000 tons.

The total production of Tennessee to the close of 1908 amounted to 90,503,772 short tons, representing an exhaustion of 135,000,000 tons. According to the estimate of M. R. Campbell, of the United States Geological Survey, the bituminous coal fields of Tennessee cover an area of 4,400

square miles, the original contents of which when mining began were 25,665,000,000 tons. The exhaustion to the close of 1908 represented a little more than one-half of one per cent. of the total estimated supply. The coal still left in the ground is approximately 189 times the exhaustion to the close of 1908, or 25,530,000,000 tons.

The United States census report of 1840 states that 558 short tons of coal were produced in Tennessee in that year. It is probable that very little was mined in the State prior to that date. By 1860 the production had increased to 165,300 tons, but development was retarded by the Civil War. Since 1880 the production of Tennessee has increased somewhat regularly, but not so rapidly as that of Alabama.

COAL PRODUCTION OF GREAT BRITAIN, 1909.

ENGLAND.		SCOTLAND.	
	TONS.		TONS.
Cheshire	310,991	Argyl, Dumfries	279,912
Cumberland	2,309,370	Ayr	4,071,699
Derby	16,869,347	Clackmannan	408,805
Durham	41,240,612	Dumbarton	477,850
Gloucester	1,486,526	Edinburgh	2,634,355
Lancaster	23,705,387	Fife	8,425,785
Leicester	2,661,606	Haddington	1,048,499
Monmouth	13,204,357	Kinross	85,640
Northumberland	14,013,135	Lanark	17,299,065
Nottingham	11,106,702	Linlithgow	1,987,966
Shropshire	829,360	Peebles	1,009
Somerset	1,140,818	Renfrew	124,092
Stafford	13,517,101	Stirling	2,917,308
Warwick	4,447,978	Sutherland	6,380
Westmoreland	1,103		
Worcester	719,630	IRELAND.	
Yorkshire	35,896,623		TONS.
		Antrim	600
		Kilkenny	61,461
		Leitrim	2,000
		Queen's	536
		Roscommon	13,846
		Sligo	580
		Tipperary	10,019
		Tyrone	350
		Total gross tons.....	263,758,562
		Total in 1908	261,512,214

WALES.	
	TONS.
Brecon	697,582
Carmarthen	1,950,429
Denbigh	2,556,612
Flint	723,967
Glamorgan	34,461,631
Pembroke	49,938

MEN EMPLOYED AND DAYS WORKED.

The total number of men employed in the coal mines of the United States in 1908 was 690,438 against 680,492 in 1907, and 640,780 in 1906. Of the total number employed in 1908, 174,174 were employed in the anthracite region of Pennsylvania, while the bituminous mines gave employment to 516,264 men. In 1907 the anthracite mines gave employment to 167,234 men, and in 1906 to 166,355 men; the bituminous workers numbered 513,258 in 1907 and 478,425 in 1906.

The average number of days worked in the anthracite region in 1908 was 200 against an average of 220 days in 1907 and 195 days in 1906. The bituminous mines worked an average of 193 days in 1908 against 234 days in 1907 and 213 days in 1906.

THE TRADE AT BUFFALO, N. Y.

The movement of hard coal by water from Buffalo during the year 1909 fell off about 500,000 tons from that of 1908. The coal was available and the shippers believed that it would all be needed by consumers west of Lake Michigan, but all effort to induce them to buy early failed, so that by early fall the receiving docks were choked up and shipments could no longer be made as anticipated. The railroads were therefore called upon during the winter to make up the deficiency from the anthracite mines direct.

The lake season was not very active till midsummer, as the effect of the business depression of 1907 had not disappeared, but the fall trade was good. Ore shippers took advantage of the brisk buying and moved a vast amount of iron ore by lake after September 1st, but the hard coal consumers could not be induced to buy until too late to fill up the coal docks again for a full winter supply.

The movement of soft coal to Buffalo from West Virginia, which was a novelty in 1908, continued in 1909, being accomplished by discounting a prohibitive all-rail rate and taking advantage of a low lake rate from Sandusky. The amount received last season was 57,781 tons, which is about the amount of the previous season. Though this coal all went practically to one consumer it has added to the uneasiness in the soft coal trade, especially as the West Virginia operators have shown an increased aggressiveness of late in the eastern market.

In the handling of bituminous coal Buffalo has profited by an increase of factories at home and interruptions more or less serious on the car ferry lines across Lake Erie, and of the condition of the Detroit River late in the fall, which diverted considerable bituminous coal to the Buffalo route.

Destination of the anthracite shipped by water from this port last year compares as follows with preceding years, as per custom house report:—

To	1904.	1905.	1906.	1907.	1908.	1909.
Chicago	1,106,485	1,068,695	939,407	1,294,166	1,392,071	1,245,001
Milwaukee	503,749	474,936	511,424	484,453	631,800	389,150
Duluth	370,086	339,168	268,818	315,600	260,650	192,925
Superior	443,627	425,398	499,486	822,720	793,214	725,425
Other ports	428,600	355,530	462,673	541,776	460,363	500,205

The 1909 shipments to "other ports" were in detail as follows:

Port.	Shipment.	Port.	Shipment.	Port.	Shipment.
Canada	236,095	Hancock	17,250	Houghton	7,800
Waukegan	56,650	Ashland	15,590	Gladstone	6,910
Sheboygan	46,160	Marquette	14,900	De Pere	5,450
Racine	21,600	Kenosha	10,550	Toledo	4,100
Manitowoc	20,000	Sault Ste. Marie.	9,300	Portage	3,900

Smaller ports:—Lake Linden, 3,200; Green Bay, 2,850; Marinette, 2,500; Bay City, 2,140; Port Huron, 2,050; Algonac, 1,850; Traverse City, 1,500; Holland, 1,400; Marine City, 1,000; Sturgeon Bay, 1,000; Cheboygan, 950; St. Ignace, 850; Ludington, 800; Kewaunee, 800; Saugatuck, 500; Alpena, 200.

Historically, the business of this port shows about as below:—

Shipments by Lake.	1904.	1905.	1906.	1907.	1908.	1909.
Anthracite, net tons.	2,887,517	2,785,362	2,681,808	3,458,695	3,538,098	3,052,501
Receipts by railroads.	1904.	1905.	1906.	1907.	1908.	1909.
Anth., gross tons.	3,250,000	3,250,000	3,250,000	4,000,000	4,000,000	4,000,000
Bit., net tons.	4,000,000	4,000,000	4,000,000	5,200,000	5,200,000	5,200,000

In the past three years there has been practically no change in the receipts of coal by rail.

Following is a comparative statement of shipments to Canadian points, rail and water, as reported by Collector of Customs, in gross tons:—

Year.	Bituminous.	Anthracite.	Coke.	Total.
1904.....	447,494	1,754,664	160,442	2,362,600
1905.....	532,555	1,739,274	140,107	2,411,936
1906.....	593,787	1,750,403	150,000	2,494,199
1907.....	809,192	2,036,914	204,821	3,050,947
1908.....	786,063	1,726,332	213,712	2,726,107
1909.....	800,741	1,748,759	350,085	2,899,585

The changes which have occurred in the "prominence" of the shippers is fully shown in the tabular statement for five years, given in gross tons:—

Companies.	1904.	1905.	1906.	1907.	1908.	1909.
D., L. & W.....	1,217,951	1,146,616	1,167,971	1,303,657	1,453,272	1,351,875
Williams & Peters	500,691	521,246	431,639	708,152	763,788	725,621
Lehigh Valley ...	657,054	579,691	667,512	783,670	673,936	583,175
Phila. & Reading..	238,882	279,806	259,199	490,361	358,211	287,232
Coxe Bros.&Co. Inc.	224,130	225,438	.....	.....	.....	.....
Various	15,472	.....	7,548	12,842	.....	.....
Totals	2,854,180	2,752,787	2,534,669	3,298,182	3,249,207	2,947,903

There is a discrepancy between the shipments reported by the companies and the amount of anthracite reported by the Custom House as having been forwarded by lake. It is not an easy matter to reconcile the difference, although it may be accounted for in part by the fact that vessel cargoes as reported to the Custom House are often estimated by vessel captains before the respective boats are loaded. The Government does not require an exact statement in regard thereto. It is therefore reasonable to suppose that the figures furnished by the shippers are the more exact. Export tonnage reported by the Custom House is precise, but domestic trade is not watched with the same close degree of supervision.

The water shipments from Buffalo in late seasons have been almost entirely anthracite, as the freight rates from the mines as compared with other Lake Erie ports practically cut off the soft coal, the single item of 10,400 tons to Port Colborne at the mouth of the Welland Canal, which is only 18 miles from Buffalo, being practically all the soft coal shipped by water. This coal was all carried in a single barge, in its several trips.

Following were the quotations per net ton of soft coal at the International Bridge, Buffalo:—

	Three-quarter.	Mine-run.	Slack.
Pittsburgh region	\$2.50	\$2.40	\$2.15
Reynoldsville and Shawmut.....	2.40	2.30	2.10
Allegheny Valley	2.30	2.20	2.05

Closing quotations of anthracite were as follows, on cars at Buffalo or bridges, gross ton: Broken (grate), \$5.25; stove, \$5.50; egg, \$5.50; chestnut, \$5.50.

The freightage of the Pittsburgh district for a term of years, shows stupendous growth between 1897 and 1907—from 43,000,000 to 161,000,000. At the same time the falling off in 1908 amounted to 25 per cent. However, it is worth while to point out that great as this decrease was, there remained still a tonnage above that of 1905 and only a little below that of 1906, showing that the 1907 tonnage was abnormal.

COAL CARRIED BY THE ANTHRACITE COMPANIES.

Philadelphia & Reading Ry. Co., years ending June 30th:—

Fuel.	1905.	1906.	1907.	1908.	1909.
Anthracite	12,029,459	11,856,871	13,223,780	13,537,464	11,586,839
Bituminous	9,184,421	10,487,598	11,190,250	10,816,439	10,574,314
Total gross tons...	21,213,880	22,344,470	24,414,031	24,353,903	22,161,153

Pennsylvania RR. Co. Year ends December 31st:—

Fuel.	1905.	1906.	1907.	1908.	1909.*
Anthracite	4,615,888	4,508,018	5,691,983	5,216,075	11,190,176
Bituminous	30,381,521	32,398,081	39,718,356	34,246,864	38,882,058
Coke	11,327,153	12,732,989	13,047,593	7,298,866	12,028,791
Total net tons....	46,329,562	49,711,088	58,457,932	46,761,805	62,101,025

*The 1909 figures include all tonnage carried; earlier reports include only the coal and coke originating on the lines of the company.

Lehigh Valley RR. tonnage for year ending June 30, 1909, is stated thus:—Coal and coke carried, not including supply, was 13,273,136 tons, a decrease of 1,249,126 compared with 1908.

The total production of anthracite coal from the lands owned and controlled by the Lehigh Valley Coal Co. and other companies in which it and the Lehigh Valley RR. Co. are interested, through ownership of stock, was 7,734,078 tons for the fiscal year ended June 30, 1909, as against 9,263,899 tons for the previous year.

During the year the Lehigh Valley Coal Co. and affiliated companies produced and purchased 83.2 per cent. of the anthracite coal transported by the Lehigh Valley RR.

The business of the Delaware, Lackawanna & Western RR. has been, in gross tons:—

	1905.	1906.	1907.	1908.	1909.
Anthracite carried	9,554,408	9,201,875	9,425,498	8,902,733	9,034,048
The company also carried 1,304,446 tons of bituminous coal in 1909.					

The business of the Delaware & Hudson Co. has been:—

	1905.	1906.	1907.	1908.	1909.
Coal carried, hard and soft	9,354,266	10,348,227	12,295,640	10,990,012	9,466,013
Production of mines of the company	5,640,528	5,401,389	6,623,508	6,526,871	6,199,043

The tonnage of the Central RR. of N. J. has been:—

	1905.	1906.	1907.	1908.	1909.
Coal carried	8,233,995	7,214,129	8,779,349	8,686,828	8,293,447

The production (not shipments) of the principal shippers over this line has been as follows:—

Lehigh & W.-B. C. Co.	4,044,221	4,883,780	5,390,920	5,722,400	4,093,655
Lehigh Coal & Nav. Co.	2,428,304	2,661,091	3,596,581	3,033,413	3,187,979

The Erie carries a great deal of coal besides anthracite, and its traffic for certain recent fiscal years was as below:—

Quality.	1905.	1906.	1907.	1908.	1909.
Anthracite	7,089,796	7,437,475	8,628,049	9,058,591	9,331,192
Bituminous	6,960,215	7,249,820	7,398,700	7,078,088	5,955,843
Coke	1,727,183	2,290,737	2,291,282	1,234,600	1,556,382
Total	16,556,194	16,978,032	18,258,031	17,371,279	16,843,417

The Erie's anthracite business now includes the tonnages formerly reported under the head of Pennsylvania Coal Co. and New York, Susquehanna & Western RR. Co., as well as that originating at mines tributary to the Erie RR. Its calendar year tonnage appears in the tabular statement of anthracite shipments.

The N. Y., O. & W. Ry. Co. for fiscal years ending June 30th carried the following coal from its Scranton division to the company's docks at Oswego, Cornwall and Weehawken:—

	1905.	1906.	1907.	1908.	1909.
To the lakes	177,548	118,825	148,568	270,468	234,860
To tidewater	1,399,792	1,281,803	1,291,399	1,224,379	1,501,529
Total	1,577,340	1,400,628	1,439,967	1,494,874	1,736,389

Calendar year tonnage of this road appears in the tabular statements of anthracite shipments.

CONSTITUENT PROPERTIES OF ILLINOIS COAL.

The following table, compiled by A. Bemnt, C. E., of Chicago, shows the composition of coal from various districts of Illinois:

Seam.	Fields.	Chemical composition of seams.		Heating Power per Pound in B. T. U.		
		Moisture.	Ash in Dry Coal.	Moist Coal.	Dry Coal.	Pure Coal.
No. 1	All fields	11.57	6.27	11,915	13,473	14,375
No. 2	Wilmington	15.34	5.87	11,507	13,590	14,438
No. 2	Southern	14.86	10.08	11,054	12,983	14,438
No. 5	Springfield	12.66	12.31	10,990	12,583	14,350
No. 5	Peoria and Fulton.....	14.67	15.10	10,381	12,166	14,330
No. 5	Saline	6.75	7.75	12,945	13,882	15,048
No. 6	All fields	14.38	11.69	10,774	12,584	14,250
No. 7	Williamson and Franklin.	9.65	12.16	11,508	12,737	14,500

AVERAGE CHEMICAL COMPOSITION OF WASHED AND SIZED COAL AS RECEIVED AT CHICAGO.

No.	Williamson County—		Moist Coal. B. T. U.	Ash.	Dry Coal. B. T. U.
	Moisture.	Ash.			
1	10.4	8.56	11,751	9.56	13,114
2	10.6	7.52	11,873	8.41	13,280
3	10.8	7.22	11,887	8.10	13,325
4	11.0	8.19	11,717	9.20	13,166
5	14.9	10.07	10,879	11.84	12,783

No.	Central Illinois—		Moist Coal. B. T. U.	Ash.	Dry Coal. B. T. U.
	Moisture.	Ash.			
1	12.50	8.28	11,026	9.46	12,601
2	12.70	7.74	11,072	8.87	12,683
3	15.00	7.99	10,718	9.40	12,610
4	15.30	8.68	10,580	10.25	12,491
5	17.50	9.47	10,164	11.48	12,320

Spain imported nearly 2,000,000 tons of coal in the year 1909, showing in this instance an increase of 28,000 tons compared with the importation of 1,940,000 tons in 1909. Imports of coke amounted to 297,921 tons in 1909, as compared with 277,781 tons in 1908. Nearly 10,000,000 tons of iron ore of various varieties was exported from the country last year.

KENTUCKY.

The tonnage in recent years has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	3,542,132	1902.....	6,421,266	1906.....	9,526,425
1899.....	4,494,091	1903.....	7,538,032	1907.....	10,753,124
1900.....	5,020,675	1904.....	7,095,278	1908.....	9,805,777
1901.....	5,239,224	1905.....	8,038,646	1909.....	10,500,000

The output by the several districts in the State is divided as below:—

District.	Tons 1904.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.
Western	4,109,476	4,681,475	5,752,482	6,450,000	5,634,596
Southeastern	2,417,309	2,779,559	2,965,167	3,300,000	3,050,591
Northeastern	568,490	577,630	808,776	1,000,000	1,120,590
Making total of.	7,095,275	8,038,646	9,526,425	10,753,124	9,805,777

In 1908 the disposition of the product was as follows, amounts being in short tons:—

District.	Locally.	At mine.	Coked.	Shipped.	Total tons.
Western	234,671	179,776	85,149	5,135,000	5,634,596
Southeastern	46,755	58,871	300	2,944,665	3,050,591
Northeastern	19,857	22,626	.....	1,078,107	1,120,590
Totals	301,283	261,273	85,449	9,157,772	9,805,777

Of the total output, 70,413 tons were cannel.

There was but little difference between the percentage of the coal shipped from the mines that went to other States in 1907 and the percentage for 1908, though the latter year does show a small decrease. Following were the outward shipments in the latter year:—

District.	Shipped from Mines. Tons.	Tons to other States.	Per cent. to other States.
Western	5,135,000	3,174,292	61.81
Southeastern	2,944,665	1,483,255	50.37
Northeastern	1,078,107	630,354	58.46
Totals	9,157,772	5,287,901	57.74

But little coke was made. Indeed, for the last four years the production of coke has been falling off, showing a decrease of 27,122 tons in 1908, as compared with the output for 1905. The loss has occurred chiefly at the Straight Creek ovens, in Bell County, which turn out the only iron-making coke made in the State. Those ovens show a decrease from 17,419 tons in 1906 to 100 in 1908, having been idle nearly all of the latter year. The production in short tons for 1907 and 1908, respectively, was as follows:—

	1907.	1908.
St. Bernard Mining Co.....	44,339	36,416
Ohio Valley C. & M. Co.....	1,394	1,837
Straight Creek C. & C. Co.....	2,665	100
Total	48,398	38,353

"It does not seem probable that Kentucky will enter upon its destiny as a great coke making State until ovens begin to burn in the Big Sandy Valley, and it seems a pity that the high grade coking coal of that splendid region should now be going into the domestic market. It will be needed at Pittsburgh in time," says Dr. C. J. Norwood, director of the Kentucky Geographical Survey.

The output of coal in this State has increased rapidly, and there is the disposition to regard it as the next in line to West Virginia to be developed as to its coal resources and output. There is a growth in the shipment of

Kentucky coal to distant points, as one may gather from the record. The coal is of good quality, it is mined cheaply, and the industry is not beset with labor troubles, for the U. M. W. is not powerful in this State. There is an active development likely in Pike County, now that railroad facilities are to be had, and in the western field about Paducah we are advised that tonnage shipments are increasing.

According to the estimates, the original coal supply in the State of Kentucky, when mining first began, was 104,028 million tons, of which 67,787 million tons were in the eastern Kentucky region and 36,241 million tons in the coal areas of the western part of the State. From the total original supply there had been mined to the close of 1908, according to the best records obtainable, approximately 132,650,000 tons, which represents an exhaustion estimated at 199,000,000 tons, or 0.18 per cent. of the original supply.

The Consolidation Coal Co., of Baltimore, Md., is making good progress at its new operations at Van Lear, Ky. This town is named after Van Lear Black, one of the directors of the company, who is also prominently connected with the Black, Sheridan, Wilson Co. At Van Lear the Consolidation Coal Co. has five mines, equipped with all modern improvements. They are being developed on the drift principle and a 42-inch seam is worked. While this is quite thin, the coal is of a high class and is shipped in prepared sizes suitable for domestic use. Under these circumstances a fairly high price is obtained for it, and the operation is more profitable than would be the case were the tonnage sold for steam purposes.

Van Lear is located three miles from Paintsville, Ky., and 67 miles from Ashland, a main line point on the Chesapeake & Ohio and on the Ohio River also. Shipping facilities are afforded by a branch road constructed by the Chesapeake & Ohio Ry. Co. and shipments are made to the West. At present the business amounts to upwards of 1,000 tons a day, but when the mines are fully developed each one of the five will turn out fully that much. Operations are in charge of John G. Smith, whose title is Manager Kentucky Division, the Consolidation Coal Co. now operating its several mines in Maryland, West Virginia, Pennsylvania and Kentucky as State divisions, with a manager in charge of each group.

In time to come the Kentucky mines are expected to figure very prominently in the trade. The company owns a large acreage and the nearness to growing western markets is relied upon to afford a ready sale for the product.

SALES OF BRITISH COLUMBIA COAL.

Table showing total output of coal of British Columbia collieries during 1909, and the markets in which the same was sold:—

Coal.	Vancouver Isl.	Crow's Nest.	Total.
Sold for consumption in Canada.....	862,068	136,406	998,494
Sold for consumption in United States..	324,748	353,389	678,137
Sold for consumption in other countries.	63,509	.....	63,509
Total in gross tons.....	1,250,345	489,795	1,740,140

The 1909 coke statistics are as follows:—

Coke.	Vancouver Isl.	Crow's Nest.	Total.
Sold for consumption in Canada.....	5,493	205,391	210,884
Sold for consumption in United States..	.....	40,478	40,478
Total in gross tons.....	5,493	245,869	251,362

THE YEAR'S BUSINESS AT CLEVELAND.

The year 1909 will be remembered as one of the most important and interesting periods of the coal history of Ohio in many respects. Not only did the business experience the most severe effects of the financial depression during that time, but the struggle for competition upon an equal basis between the operators of Ohio and West Virginia reached its climax in the formation of a state association of operators and in a hearing on traffic rates before the State Railroad Commission of Ohio. Ohio operators' and especially those of the Pittsburgh No. 8 vein, emphasized their belief in rates proportioned of distance hauled by bringing before that body a mass of evidence and reasoning which resulted in a decision early in 1910 to the effect that lake rates charged by the railroads reaching the eastern Ohio field shall be reduced from 90 cents to 70 cents per ton.

Although the business done through the year was much larger in amount than in 1908, prices were at such a low ebb that little, if any, profit was realized. In an address before a meeting of coal men late in the year a well-known producer declared that not a dollar had been made in the coal business for the past two years. Producers realized this all along and endeavored to impress the miners with existing conditions, so that no dispute might arise as to the scale which would be made the following April. The coal was often sold at prices that would merely cover the cost of production without reference to the actual value of the product in the ground.

Aside from the hesitant buying of fuel, two causes entered into the prices that were made. One of them was the effort of certain companies to secure a large amount of business at any cost. This acted as a bear factor and other companies finally met the figures and went enough further to take any business that might be offered. The other cause was the competition with West Virginia producers who sought to find a market for their surplus which was not being taken by the eastern markets. Early in September, however, the demand had increased to such an extent that a number of Cleveland operators instructed their salesmen to take no further orders at prices under 90 cents a ton at the mines. At that time slack was selling at 40 cents and run-of-mine from 80 to 90 cents per ton.

Another feature of the business was the drought that occurred in eastern Ohio and western Pennsylvania and West Virginia during October and November. In some places mines were compelled to close down entirely for days and weeks at a time, while in others they were operated at short periods, the remainder of the time being allowed for the water to accumulate in sufficient quantities to supply the boilers for short runs. Coal was, of course, scarce during this time and filling contracts became difficult, with no free coal to amount to anything to be sold at the favorable figures that naturally resulted from such conditions. The hardship was all with the producers, though, as all factories were kept supplied, but with great effort and worry through the period.

Apparently the one bright spot of the entire year was the prospect of an improved harbor at Cleveland. This has been neglected for so long that much of the coal and ore trade has slipped away from the city and gone to smaller towns along the lake, although Cleveland is logically the port for these commodities and is pronounced by some to be the cheapest and most convenient place on the south shore of Lake Erie for the production of iron.

The year 1909 opened with an unexpected scarcity of slack and the

price of almost any grade or kind advanced in a few days to 90 cents at the mine. Some companies were compelled to refuse orders, but toward the latter part of the month the production equalled the demand and the price went off, quotations being around 70 cents. Early in February, West Virginia coals made their appearance in the markets usually supplied by the eastern Ohio mines and a further depression followed. Operations went down to 30 per cent. of their capacity within a short time. West Virginia slack was quoted at 60 cents, while the Ohio product was offered at 65 to 70 cents, with extremely light sales. It was about this time that the Ohio Association of Coal Operators was formed and plans made to bring charges against the railroads on the ground of discrimination in rates.

Business conditions for Ohio operators remained very poor through March and April, but in May a revival in the iron and steel business brought some activity in coal. In June there was another slump when all sizes of coal went down and the mines ran at about 50 per cent. of their capacity, notwithstanding the fact that there was some lake shipping. A continued, gradual decline prevailed, with slack 50 cents and mine-run 80 cents in July; slack 45 to 50 cents and mine-run, 80 to 90 cents in August and slack 40 cents and mine-run 80 to 90 cents in September. During the latter part of September a turn for the better was noticed and slack went up to 70 cents, with other sizes in proportion. A scarcity of cars developed in October and prevented delivery of coal at market prices, every ton of it being taken to fill orders booked at the lower prices. To make a bad situation worse, the railroads turned the greater number of the gondola cars into the iron, steel and clay trade. Concerns which were not prepared to handle hopper cars found it both difficult and expensive to take their coal from them. Complaint, however, did not mend matters and they had to make the best of the situation.

Late in October the dock companies and large consumers in the Northwest began to demand immediate delivery of larger amounts of coal, fearing that the supply would not be sufficient for the year at the rate it was being shipped. Both the scarcity of cars and the absence of water were then operating to delay production and delivery, but early in November the railroads began to concentrate their cars in the lake coal trade and thereafter there was little complaint from that source. These conditions resulted in strengthening the local steam prices. Slack went up to 60 cents and mine-run sold around 95.

Contract business took a peculiar turn in March, when renewals are usually made. Because of the very low prices then prevailing for spot coal many of the consumers concluded that they would depend for a time upon their wits in securing supplies. This worked all right while the market was down, but later in the year they were glad to tie up tonnage. Then the producers were on a little better ground and refused to take contracts except at figures that would yield something of a profit, except in certain localities where they came into competition with coal that was offered apparently merely for the cost of removing it from the ground.

Although there was quite a little delay in beginning lake shipments and predictions were made that the amount going to northwestern points would fall far short of requirements, figures show that April was the only real light month. Tonnage increased until it reached the highest point in August, but after that no sudden decline ensued. On the contrary, the record is better than for five or six years previous, and December showed the heaviest tonnage of any closing month of the year in the history of the business.

Bituminous coal forwarded by lake in 1909, as compared with 1905, 1906, 1907 and 1908, is shown as follows.

Month.	1905.	1906.	1907.	1908.	1908.
April	155,282	378,913	282,974	33,173	113,015
May	267,870	337,964	355,486	308,597	382,011
June	292,615	506,314	417,150	745,999	578,977
July	397,803	380,777	532,305	733,575	660,272
August	369,169	315,111	482,685	517,333	678,830
September	294,508	376,336	371,572	320,034	562,917
October	147,352	284,082	319,909	369,280	503,561
November	176,220	259,482	413,505	273,047	408,433
December	70,097	86,121	89,289	49,792	169,247
Totals	2,167,916	2,926,229	3,264,875	3,350,830	4,057,263

The record of receipts of bituminous and anthracite coal and coke since 1902 is as follows:

Year.	Bituminous.	Anthracite.	Coke.	Total.
1902	4,963,570	158,405	737,603	5,859,578
1903	5,577,964	254,193	763,430	6,595,578
1904	5,347,476	199,907	594,101	6,141,484
1905	4,846,162	295,423	583,053	5,724,638
1906	6,021,958	145,822	659,307	6,827,087
1907	5,995,197	153,077	849,850	6,998,124
1908	5,725,420	165,717	690,742	6,581,879
1909	6,264,998	363,162	1,034,649	8,062,809

Shipments of bituminous coal by lake since 1892 were as follows:

1892	1,728,831	1898	2,108,310	1904	3,052,819
1893	1,257,326	1899	2,394,156	1905	2,567,916
1894	1,106,000	1900	2,201,828	1906	2,926,279
1895	1,125,624	1901	1,787,028	1907	3,264,875
1896	1,803,709	1902	2,234,029	1908	3,433,372
1897	2,027,693	1903	2,752,549	1909	4,057,263

SOUTHERN RAILWAY COAL TONNAGE.

Below we give the tonnage of coal originating on and handled by the Southern Ry., by months for the years 1908 and 1909:

Month	Tennessee District		Alabama District.		Total.	
	1908.	1909.	1908.	1909.	1908.	1909.
January	58,666	118,326	106,698	200,903	165,364	319,229
February	79,163	107,831	145,829	183,053	224,992	290,883
March	66,783	110,087	117,461	180,980	184,244	294,331
April	68,248	100,739	165,956	190,328	234,204	291,067
May	71,645	102,462	125,200	176,746	247,377	279,067
June	94,242	105,192	153,135	177,675	247,377	282,867
July	86,846	91,327	124,898	204,886	211,744	296,213
August	93,196	104,454	138,217	211,018	231,413	315,472
September	101,673	108,058	143,780	225,796	245,452	333,854
October	165,144	103,901	240,328	239,957	405,472	343,858
November	113,884	101,535	206,583	249,807	320,467	351,342
December	99,133	95,014	228,198	232,067	327,331	327,081
Total	1,098,623	1,248,926	1,896,283	2,473,216	3,045,438	3,725,264

CLEVELAND RECEIPTS AND SHIPMENTS.

Cleveland, Ohio, is one of the most important points on the lakes for the shipment of bituminous coal that is mined in Pennsylvania and Ohio. There is also considerable tonnage from West Virginia mines handled here. The following statistics are forwarded by the Chamber of Commerce:—

Receipts.	1904.	1905.	1906.	1907.	1908.	1909.
Anthracite	199,907	295,423	145,822	153,077	165,717	363,162
Bituminous	5,347,476	4,846,162	6,021,958	5,995,197	5,375,420	6,264,998
Coke	594,101	583,053	659,307	849,850	690,742	1,034,649

The shipments were:—

Anthracite, rail ..	27	74	10,138	7,553	41,428	25,383
Bituminous, rail ..	61,047	50,575	45,687	112,500	82,542	122,814
Bituminous, lake ..	3,052,819	2,567,916	2,926,279	3,264,875	3,350,830	*4,057,263
Total	3,113,893	3,261,003	2,982,104	3,384,928	3,474,800	4,205,460
Coke	25,000	50,570	118,168	56,738	87,639	.....

Bituminous coal, used locally, perhaps 2,000,000 tons in 1906; in 1907, 2,600,000 tons; in 1908, 2,000,000 tons; in 1909, 2,000,000 tons.

*Railroad figures.

THE COAL TRADE OF BELGIUM.

In 1907, 1908 and 1909 the coal production of Belgium was 23,000,000 and odd tons, each year showing a very slight variation, comparing one with another.

It is a rather curious fact that the imports and exports of coal into and from Belgium quite closely balance. Great Britain, Germany and France contribute to the imports, and France also appears as the principal destination of the tonnage exported. Apparently the limited geographical area of Belgium, in between France and Germany, accounts for this singular circumstance. Imports and exports of coal are both about 5,000,000 tons per annum, but in the matter of coke it is found that while the exports exceed 1,000,000 tons, the imports are only about 300,000 tons. The coke importations come chiefly from Germany and the exports are chiefly to France.

The manufacture of briquettes in Belgium now aggregates nearly 2,500,000 tons per annum. There has been steady progress made since 1899, when the production amounted to 1,276,000 tons, and complete returns for the year 1908 show an output of 2,341,000 tons.

Belgium produces about 1,800,000 tons of pig iron per annum.

WAGES IN THE CONNELLSVILLE REGION.

This year, dating from January 16, 1910, the wages are:—Mining and loading room and rib coal, per 100 bushels, \$1.35; mining and loading heading coal, \$1.50; mining and loading wet heading coal, \$1.62; drawing coke, 78 cents; levelling per oven, 12½ cents.

All the above, per 100 bushels, by same measurement as last year.

Drivers and rope riders, shafts and slopes, are paid \$2.60; drivers and rope riders, drifts, \$2.55; cagers, \$2.60; tracklayers, blasters and timbermen, shafts and slopes, \$2.60; tracklayers, blasters, and timbermen, drifts, \$2.55; assistant tracklayers and inside laborers, \$2; dumpers and tipples, \$2.

The prices of all other labor, regularly employed in the operation of the plants, are proportionate with the above.

HAMPTON ROADS: NORFOLK—NEWPORT NEWS.

On opposite sides of the great waterway known as Hampton Roads, on the Virginia sea coast, are two of the greatest coal-shipping ports in the country: Norfolk, the tidewater terminus of the Norfolk & Western and Virginian Rys., and Newport News, the terminus of the Chesapeake & Ohio Ry. The Norfolk & Western has large coal-shipping piers on the Elizabeth River, just off Hampton Roads proper, and during the present year it is probable that large shipments will be made over the pier at the nearby terminus of the Virginian Ry., known as Sewalls Point, located where the Elizabeth River flows into Hampton Roads.

The coal business of the Norfolk & Western at this point grows steadily, as the following tabulation of shipments indicates:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1901.....	2,097,584	1904.....	2,363,610	1907.....	3,221,010
1902.....	2,362,865	1905.....	2,476,573	1908.....	2,401,223
1903.....	1,845,155	1906.....	3,021,410	1909.....	3,228,854

The business at Newport News was greater than ever before in the history of the Chesapeake & Ohio road; the operators were very active in pushing for business, as the tonnage results show. Shipments were:—1905, 3,298,298; 1906, 3,509,539; 1907, 3,887,804; 1908, 3,997,121; 1909, 4,985,426.

The term "tidewater" as used in this statement covers coal and coke tonnage which was dumped over the piers into vessels for both export and coastwise delivery. Railroad figures are in net tons.

The Department of Commerce gives the figures of the coastwise business at Hampton Roads ports as below in gross tons:—

	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Newport News	2,696,742	2,791,404	2,396,406	2,742,294	3,344,225
Norfolk	2,370,309	2,080,087	1,951,747	1,651,093	2,289,061

In 1906 Norfolk exported 435,193 tons coal and 119,768 tons coke. In 1907 coal, 699,117 tons; coke, 121,360 tons. In 1908, 576,909 tons of coal. In 1909, 852,741 tons of coal.

Newport News exported 180,545 tons coal in 1906; in 1907, 692,682 tons; in 1908, 705,011 tons; and in 1909, 739,937 tons.

In 1907 the bunker coal trade was as follows: Norfolk, coastwise 69,859, foreign 278,100; Newport News, coastwise 106,715, foreign 219,875 tons.

In 1908 the bunker coal trade was as follows: Norfolk coastwise 51,773, foreign 278,175; Newport News coastwise 100,827, foreign 200,145.

In 1909 the bunker coal trade was as follows: Norfolk coastwise 63,078, foreign 341,965. Newport News coastwise 109,711, foreign 254,277. Bunker tonnage not included in exports.

COAL TRADE AT SEATTLE.

Receipts and exports by years have been as follow:—

Years.	Receipts.	Exports.	Years.	Receipts.	Exports.
1900.....	909,322	478,562	1905.....	900,000	423,613
1901.....	991,788	482,679	1906.....	927,500	463,719
1902.....	859,301	476,828	1907.....	950,000	564,413
1903.....	1,001,798	463,186	1908.....	600,000	377,533
1904.....	945,000	392,520	1909.....	600,000	353,290

The receipts include 47,681 tons from British Columbia and 5,944 tons from Australia.

THE YEAR'S TRADE AT NEW YORK.

The year 1909, in retrospect, can scarcely be regarded as in any sense a successful season for the coal trade of the city of New York. The tonnage handled was large, as a matter of course, but it was not so great as it was reasonable to expect in view of the recovery in business that was in progress as 1908 drew to a close. And in fact the demand for coal fell to such a low stage during the summer that not only was the price of soft coal subject to concessions, as is so frequently the case, but the anthracite prices were also subject to attack as never before, and while the companies did not openly make any concessions on their prepared sizes, certain middle houses had an unfailling supply of cheap coal which they could only have secured through one of the large operating interests.

SOFT COAL STARTED OFF SLOWLY.

Considering first the bituminous trade of this port, we find that the year started off more slowly than anticipated, for in January and February there seemed to be a reaction from the spirit of good times and prosperity which prevailed to a considerable degree at the end of 1908. Only gradually did business revive, and the bituminous trade dragged along with only some trifling accession of interest when the anthracite labor situation began to be rather complex around the first of April. That episode was straightened out in the usual manner, and the bituminous people soon saw that there was not anything to be gained from an anthracite strike. No sooner was this feature put in the background than the trade was stirred from center to circumference by low prices made on Pocahontas and New River coal for the New England market.

There had already been a preliminary flurry of excitement, due to the much exaggerated reports as to the volume of business that the Virginian Ry. shippers were to put into the New England States during the year, and the rumors which accompanied the low prices of West Virginia coal seemed to indicate that there was to be no opportunity at all for the central Pennsylvania shippers to do business to the eastward during the current year. It was stated that the low prices made by one factor in the Pocahontas field were due to a breach of faith on the part of another shipper, and this led to severe price cutting for a time, but the episode was as a matter of fact rather short-lived, the folly of tying up more tonnage at low prices, with an active fall season coming on, was soon recognized, and the New England situation was soon re-adjusted. While the central Pennsylvania operators had to struggle hard for business, they were able to place as much coal in New England as they did the year before, requirements having increased enough to take care of the extra tonnage of southern coal.

FAIR TONNAGE MOVEMENT IN FALL.

Restriction and demurrage charges were two factors prominently before the soft coal men throughout the spring and summer, but when the fall season commenced there was a fair increase in tonnage movement, which made the work of the sales department somewhat easier. It cannot be said, however, that the immediate local market is subject to marked fluctuations of tonnage requirements in the course of one year and another. A very large proportion of the soft coal that is handled here is for steamship use. The ocean navigation companies have their dull seasons and their active seasons in each year, but taking the years as a whole a fair moderate increase can nearly always be counted upon, each successive twelve-month. In like manner the coal used by the gas and electric companies and the

local railroad interests constitutes a fairly constant outlet for tonnage. New York has no great rolling mills or such industrial establishments, which close down or re-open suddenly, according to the state of their market, and make at once a vast difference in the coal requirements of their home city.

While good reports came in during the latter weeks of the year as to increased coal requirements at one place or another, the New York market was at all times fairly supplied and prices did not rise notably until the last week of the year, when, under the stimulation of almost blizzard conditions between mines and tide, prices reached a point about 25 cents above what they had been at the commencement of the fall season. There was, indeed, so little urgency with respect to the purchase of coal in this market that there was only the above-mentioned increase, whereas it was the subject of comment that in a more normal season, when there were not so many seekers after business, when the coal men had more courage in respect to price asked, the rate for soft coal would easily have advanced one dollar a ton under the conditions existing.

At the close of the year local interests in this line were once more deeply interested in the matter of the central Pennsylvania mining rate, realizing that the basis there established, both in itself and by comparison with the rate of other districts meant much to the Clearfield and Cambria County operators, who supply so much of the soft coal tonnage used hereabouts.

EARLY ACTIVITY IN ANTHRACITE.

In the anthracite market the early part of the year was characterized by activity, in view of the widely advertised fact that the wage agreement would expire April 1st. While the weather was not severe, the strike talk that was persistently in the air was consequential enough to keep tonnage moving very freely from the mines to the dealers, and, in turn, to the consumers. As the first of April drew near the usual spectacle of a strongly held position on each side of the wage question was presented. There seemed a good prospect of at least a suspension of work for a number of weeks, and local dealers purchased coal freely, having dozens or scores of cargoes kept afloat for them, yard capacity in this city being, as a general thing, quite limited.

After the first week of April had passed by, with no suspension of work but with acrimonious meetings in progress, the situation looked dark for a while, and for two or three days certain companies would not accept any orders. But this phase of the situation soon passed by and it became evident that a harmonious adjustment would soon be reached. The men did not stop work at any time, and after new terms of agreement had been signed the latter part of the month, the usual price discount was announced and due allowance was made on the bills of the dealers. The considerable amount of coal afloat in the harbor quite naturally had an influence upon sales for several weeks, and in the case of small dealers, who had purchased perhaps more liberally in proportion to the demands of their trade, no more tonnage was required until summer.

INTEREST WANED WITH NO STRIKE.

As soon as it became apparent that there was to be no strike, such slight interest as the public at large had been taking in coal matters vanished speedily, and those local interests that did not have steam trade contracts found it hard to move tonnage. This applies to both wholesale and retail dealers, for the wholesale dealers who supply the family trade retailers soon found that their customers were taking very little coal. The

condition was due, as may be readily understood, to the fact that the financial disturbances of the months recently gone by had reduced the resources of thousands of people and under the circumstances they saw no particular advantage in laying out money for their winter's coal supply, even at a reduced price, in the summer time.

The situation in this respect was even more pronounced than in the year before, and, as in the preceding season, retailers did not care to force matters, believing that if they did effect sales they would have to wait long for their money. These conditions were particularly noticeable in New York, for it is now almost universal for gas to be used as fuel during the summer months, and the great majority of households do not require coal until the approach of fall. Of course the large steam trade in anthracite kept on very much as it did in the most successful year of the industry, and it must not be understood that the trade as a whole was at a standstill at any time. Yet the same conditions that reduced the tonnage at large to such low figures in July and August had its full influence upon the New York City trade during those months.

WEATHER HELPED FALL DEMAND.

A large part of the dullness of the summer was, as indicated above, deferred, not lost, and as the fall season started in with several sharp days early in October, the anthracite wholesale interests soon found that the trade in this territory was becoming quite active, and from that time on there was no further trouble in regard to prices or tonnage movement, although to be sure the surplus of egg coal was rather an odd and very persistent feature up to the end of the year. The great demand for chestnut coal in the West had its influence in making that size rather hard to obtain in this market and elsewhere.

While there was a period of hesitation by reason of warm weather in November, there was soon a restoration of confidence and trade activity as a result of the sharp winter weather that commenced in practically all of the eastern portion of the United States soon after the first of December. At the very end of the year local conditions were, in fact, decidedly complicated by the severe winter weather that had developed. Retailers were severely taxed to make deliveries, results proving that their customers had deferred altogether too long the ordering of tonnage, and the retailers in turn found that the scarcity of coal at the loading ports and the interruptions to harbor navigation by stress of weather were preventing them from getting in coal as fast as they should. For several days directly after the holiday season the local situation was decidedly interesting, but as conditions moderated it was, after a time, again feasible to make wholesale deliveries with the usual regularity, and the retailers were able to take care of their customers without working at night or on Sundays and holidays.

The retail dealers of the city, particularly of Manhattan, experienced an unsatisfactory year. The competition for steam trade, which became all the more acute in 1908, with the falling off of domestic trade, continued during 1909 and led to extremely low prices being quoted. It was also found that during the past year the price on domestic trade and the smaller sorts of contract business, such as apartment house supply, was severely competed for. In fact the entire tonnage of the borough was probably sold as close to cost as ever before, and while the same acute conditions did not prevail in the outlying sections of the city, it was naturally a matter of some comment that the steadily reducing number of dealers in Manhattan seemed to lead to all the sharper commercial activity on their

part, and this notwithstanding a marked increase in local coal requirements, as large buildings replaced small ones.

INCREASE SURE IN 1910.

It is recognized as an axiom of the trade that the anthracite tonnage never shows a decrease for more than two years in succession, and as both 1908 and 1909 have shown a decrease, it is regarded as certain that 1910 will show an increase. This naturally means more business for the producers and shippers having their offices in this city, for of course the great bulk of the anthracite tonnage is disposed of in eastern territory. Draw a line northwest from Washington, through Harrisburg to Buffalo, and thence somewhat indefinitely over into Canada, and it will be found that certainly 80 per cent., probably 85 per cent., of the anthracite coal tonnage is disposed of to the northward of that geographical limitation. Naturally the greater part of the territory so described is tributary, directly or indirectly, to the New York market, and the growth of the trade naturally makes its influence felt very promptly upon the hard coal concerns at this center.

ATLANTIC PORTS DOMESTIC COAL SHIPMENTS.

Months.	Anthracite			Bituminous			N. N.	Norf.
	N. Y.	Phila.	Balt.	N. Y.	Phila.	Balt.		
January	1,247,202	133,868	17,292	849,900	410,311	253,954	207,693	113,338
February	1,085,195	140,832	11,137	760,336	290,132	282,753	165,938	103,474
March	1,568,061	198,138	11,138	861,602	352,860	315,888	278,284	198,577
April	1,924,588	286,088	42,660	855,401	348,137	276,833	306,014	145,422
May	1,009,636	190,460	32,223	847,940	357,220	259,595	330,621	154,001
June	929,545	144,196	14,762	901,861	390,975	254,789	314,656	207,602
July	814,203	99,927	8,887	885,112	436,965	300,194	327,504	212,139
August	876,743	102,248	14,309	889,829	460,776	300,765	331,276	221,681
September	943,995	149,312	9,533	951,463	468,387	298,444	375,091	193,697
October	1,312,306	199,255	23,035	922,153	455,767	264,920	297,027	146,421
November	1,375,801	180,608	26,606	926,934	367,039	281,298	283,557	175,230
December	1,331,017	176,884	23,651	897,443	355,716	264,792	278,935	175,335
Total, 1909	14,418,292	2,001,866	235,233	10,549,974	4,674,276	3,344,225	3,496,596	2,047,417
1908	15,069,981	2,164,747	251,739	10,247,014	4,675,767	3,704,851	2,742,294	1,651,093
1907	16,753,911	2,411,521	266,062	11,691,101	5,095,473	3,804,066	2,896,406	1,587,573

The word "domestic" is used by the Treasury Department in distinction to "foreign."

To the Norfolk total should be added 241,644 tons, which were dumped over the Sewalls Point pier.

THE INEVITABLE MINE ACCIDENTS AND THEIR COST.

The mines of Pennsylvania alone kill more than 1,100 people every year, while the number who are seriously injured, for no cognizance is taken of those whose injuries do not incapacitate them from duty, runs up into the thousands. Anthracite mine inspection was first started in 1870, immediately after the great Avondale disaster in which 179 persons lost their lives. In the tenth year of this inspection, with six inspectors covering the field, there were 262 deaths. Since that time the number of inspectors has been gradually increased until now in the same territory there are 20 inspectors, and still the slaughter increases year by year. Of course the production and number of employes has also increased during that time and yet that the ratio of production and of lives lost in proportion to the number of employes has not decreased to any appreciable extent is puzzling.

NEW YORK MARKET, 1909.

ANTHRACITE—FREE BURNING.

	January.	February.	March.	April.	May.	June.
Broken	\$4.30 to 4.75	\$4.20 to 4.25	\$4.20 to 4.25	\$4.20 to 4.25	\$4.20 to 4.25	\$4.30 to 4.45
Egg	4.95 to 5.00	4.95 to 5.00	4.95 to 5.00	4.45 to 4.50	4.55 to 4.60	4.65 to 4.70
Stove	4.95 to 5.00	4.95 to 5.00	4.95 to 5.00	4.45 to 4.50	4.55 to 4.60	4.65 to 4.70
Chestnut	4.95 to 5.00	4.95 to 5.00	4.95 to 5.00	4.45 to 4.50	4.55 to 4.60	4.65 to 4.70
Pea	3.20 to 3.25	3.20 to 3.25	3.20 to 3.25	3.20 to 3.25	3.20 to 3.25	3.20 to 3.25
Buckwheat	2.45 to 2.50	2.45 to 2.50	2.45 to 2.50	2.45 to 2.50	2.25 to 2.50	2.35 to 2.50
Rice or No. 2 buck.	1.75 to 2.00	1.75 to 2.00	1.75 to 2.00	1.80 to 2.00	1.65 to 2.00	1.75 to 2.00
Ind. and wash. pea.	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10
Washery buck.	2.20 to 2.35	2.25 to 2.35	2.20 to 2.35	2.45 to 2.50	2.20 to 2.35	2.25 to 2.45
Washery rice	1.70 to 1.80	1.70 to 1.80	1.75 to 1.80	1.80 to 1.85	1.60 to 1.80	1.60 to 1.80
Barley	1.45 to 1.50	1.35 to 1.50	1.35 to 1.40	1.40 to 1.50	1.20 to 1.50	1.30 to 1.50

	July.	August.	September.	October.	November.	December.
Broken	\$4.20 to 4.50	\$4.30 to 4.60	\$4.20 to 4.75	\$4.20 to 4.75	\$4.20 to 4.75	\$4.20 to 4.75
Egg	4.75 to 4.80	4.85 to 4.90	4.65 to 5.00	4.95 to 5.00	4.95 to 5.00	4.95 to 5.00
Stove	4.75 to 4.80	4.85 to 4.90	4.65 to 5.00	4.95 to 5.00	4.95 to 5.00	4.95 to 5.00
Chestnut	4.75 to 4.80	4.85 to 4.90	4.65 to 5.00	4.95 to 5.00	4.95 to 5.00	4.95 to 5.00
Pea	3.20 to 3.25	3.20 to 3.25	3.00 to 3.25	3.10 to 3.25	3.00 to 3.25	3.00 to 3.25
Buckwheat	2.35 to 2.50	2.35 to 2.50	2.15 to 2.50	2.35 to 2.50	2.35 to 2.50	2.35 to 2.50
Rice or No. 2 buck.	1.75 to 2.00	1.75 to 2.00	1.70 to 2.00	1.75 to 2.00	1.75 to 2.00	1.75 to 2.00
Ind. and wash. pea.	3.00 to 3.10	3.00 to 3.10	2.75 to 3.10	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10
Washery buck.	2.10 to 2.45	2.15 to 2.45	1.90 to 2.45	2.25 to 2.45	2.25 to 2.45	2.25 to 2.45
Washery rice	1.65 to 1.80	1.65 to 1.80	1.60 to 1.80	1.60 to 1.80	1.65 to 1.80	1.65 to 1.80
Barley	1.40 to 1.50	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50	1.20 to 1.50	1.30 to 1.50

Prices are for coal from companies; individuals and middlemen may charge 10 cents more or less, according to market conditions.

BITUMINOUS.

	January.	February.	March.	April.	May.	June.
Georges Creek	\$3.10 to 3.45	\$3.40 to 3.45	\$3.20 to 3.45	\$3.10 to 3.45	\$3.10 to 3.45	\$3.10 to 3.45
High grade $\frac{3}{4}$ lump.	3.10 to 3.20	3.00 to 3.10	3.00 to 3.20	3.10 to 3.20	3.10 to 3.20	3.10 to 3.20
High grade gas, r.-of-m	3.00 to 3.10	2.90 to 3.00	2.90 to 3.00	3.00 to 3.10	2.90 to 3.00	3.00 to 3.10
Best Miller vein coals.	2.75 to 2.90	2.75 to 2.90	2.75 to 2.90	2.75 to 2.90	2.75 to 2.90	2.75 to 2.90
Miller and Moshannon.	2.60 to 2.70	2.60 to 2.70	2.60 to 2.70	2.60 to 2.70	2.60 to 2.70	2.60 to 2.70
Best Somerset	2.65 to 2.75	2.65 to 2.75	2.65 to 2.75	2.65 to 2.90	2.60 to 2.75	2.55 to 2.75
Ordinary Somerset	2.50 to 2.55	2.40 to 2.45	2.50 to 2.55	2.50 to 2.55	2.45 to 2.50	2.40 to 2.55
Fairmont, three-quarter.	2.65 to 2.75	2.50 to 2.60	2.60 to 2.70	2.60 to 2.70	2.60 to 2.70	2.55 to 2.65
Fairmont, run-of-mine..	2.50 to 2.60	2.40 to 2.50	2.50 to 2.60	2.50 to 2.60	2.50 to 2.60	2.45 to 2.50
Odds and ends	2.35 to 2.45	2.25 to 2.35	2.25 to 2.35	2.35 to 2.45	2.25 to 2.35	2.20 to 2.30

	July.	August.	September.	October.	November.	December.
Georges Creek	\$3.10 to 3.45	\$3.10 to 3.45	\$3.10 to 3.45	\$3.20 to 3.45	\$3.10 to 3.45	\$3.20 to 3.45
High grade $\frac{3}{4}$ lump.	3.10 to 3.20	3.10 to 3.20	3.10 to 3.20	3.10 to 3.20	3.10 to 3.20	3.20 to 3.25
High grade gas, r.-of-m	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10	3.00 to 3.10	3.10 to 3.20
Best Miller vein coals.	2.75 to 2.90	2.75 to 2.90	2.75 to 2.90	2.75 to 2.90	2.85 to 3.00	2.95 to 3.00
Miller and Moshannon.	2.60 to 2.70	2.60 to 2.70	2.60 to 2.70	2.60 to 2.70	2.70 to 2.80	2.65 to 2.75
Best Somerset	2.60 to 2.75	2.60 to 2.75	2.65 to 2.75	2.65 to 2.75	2.75 to 2.85	2.80 to 3.00
Ordinary Somerset	2.50 to 2.55	2.50 to 2.55	2.40 to 2.55	2.50 to 2.55	2.55 to 2.60	2.55 to 2.60
Fairmont, three-quarter.	2.60 to 2.70	2.55 to 2.65	2.60 to 2.70	2.60 to 2.70	2.70 to 2.80	2.70 to 2.80
Fairmont, run-of-mine..	2.50 to 2.60	2.45 to 2.50	2.50 to 2.60	2.50 to 2.60	2.60 to 2.70	2.60 to 2.70
Odds and ends	2.20 to 2.30	2.20 to 2.30	2.35 to 2.40	2.40 to 2.45	2.50 to 2.55	2.40 to 2.45

LINE BITUMINOUS.

B. & O. RR. coals, prompt delivery:—

	January.	February.	March.	April.	May.	June.
Georges Creek	\$1.50 to 1.90	\$1.60 to 1.80	\$1.40 to 1.90	\$1.50 to 1.80	\$1.60 to 1.80	\$1.50 to 1.80
Best Somerset	1.15 to 1.25	1.25 to 1.35	1.20 to 1.25	1.10 to 1.35	1.15 to 1.35	1.10 to 1.25
Somerset	1.10 to 1.15	1.10 to 1.15	1.00 to 1.15	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10
W. Va. Freeport .....	.90 to .95	.80 to .90	.90 to .95	.90 to .95	.90 to .95	.90 to .95
Fairmont dist, $\frac{3}{4}$ lump..	.80 to .90	.70 to .80	.80 to .90	.80 to .90	.80 to .90	.80 to .90
Fairmont, run-of-mine..	.70 to .80	.60 to .70	.70 to .80	.70 to .80	.70 to .80	.70 to .80
Fairmont dist. slack ..	.65 to .70	.65 to .70	.55 to .60	.65 to .70	.55 to .60	.60 to .70

	July.	August.	September.	October.	November.	December.
Georges Creek	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80
Best Somerset	1.15 to 1.25	1.10 to 1.25	1.15 to 1.25	1.15 to 1.25	1.25 to 1.30	1.25 to 1.35
Somerset	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.15 to 1.20	1.10 to 1.15
W. Va. Freeport .....	.90 to .95	.90 to .95	.90 to .95	1.00 to 1.05	1.00 to 1.05	1.00 to 1.10
Fairmont dist, $\frac{3}{4}$ lump..	.80 to .90	.80 to .90	.80 to .90	.80 to .90	.90 to 1.00	.90 to 1.00
Fairmont, run-of-mine..	.70 to .80	.70 to .80	.70 to .80	.70 to .80	.80 to .90	.80 to .90
Fairmont dist. slack...	.50 to .55	.45 to .50	.50 to .60	.60 to .70	.75 to .80	.80 to .85

Pennsylvania RR. coals, prompt delivery:—

	January.	February.	March.	April.	May.	June.
Georges Creek	\$1.50 to 1.90	\$1.60 to 1.80	\$1.40 to 1.90	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80
Best Miller vein	1.30 to 1.40	1.30 to 1.40	1.30 to 1.40	1.30 to 1.40	1.30 to 1.40	1.30 to 1.40
Miller and Moshannon ..	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25
Best gas coal, ¾ lump..	1.25 to 1.35	1.25 to 1.35	1.20 to 1.35	1.25 to 1.40	1.25 to 1.35	1.30 to 1.45
Best gas, run-of-mine..	1.15 to 1.25	1.15 to 1.25	1.10 to 1.20	1.15 to 1.25	1.15 to 1.25	1.15 to 1.30
Best gas coal, slack....	.65 to .70	.65 to .70	.55 to .60	.60 to .70	.55 to .65	.60 to .75
Ordinary Clearfield.....	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10
Ordinary Latrobe .....	.95 to 1.05	.95 to 1.05	.90 to 1.00	.95 to 1.05	.90 to 1.00	.90 to 1.00
	July.	August.	September.	October.	November.	December.
Georges Creek	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80
Best Miller vein	1.30 to 1.40	1.30 to 1.40	1.30 to 1.40	1.30 to 1.40	1.35 to 1.50	1.35 to 1.65
Miller and Moshannon ..	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.20 to 1.35
Best gas coal, ¾ lump..	1.30 to 1.35	1.30 to 1.35	1.30 to 1.40	1.30 to 1.35	1.30 to 1.35	1.40 to 1.45
Best gas, run-of-mine..	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.25 to 1.35
Best gas coal, slack....	.50 to .55	.45 to .50	.50 to .60	.60 to .75	.75 to .80	.80 to .85
Ordinary Clearfield.....	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.10 to 1.15	1.10 to 1.15
Ordinary Latrobe .....	.90 to 1.00	.90 to 1.00	.90 to 1.00	.95 to 1.00	1.00 to 1.10	1.00 to 1.10

B. & O. RR. contract:—

	January.	February.	March.	April.	May.	June.
Georges Creek	\$1.50 to 1.90	\$1.60 to 1.80	\$1.40 to 1.90	\$1.50 to 1.80	\$1.60 to 1.80	\$1.50 to 1.80
Best Somerset	1.25 to 1.35	1.25 to 1.35	1.25 to 1.35	1.15 to 1.35	1.25 to 1.35	1.15 to 1.35
Somerset	1.10 to 1.20	1.10 to 1.20	1.10 to 1.20	1.10 to 1.20	1.10 to 1.20	1.10 to 1.15
W. Va. Freeport .....	.90 to 1.00	.90 to 1.00	.90 to 1.00	.90 to 1.00	.90 to 1.00	.90 to 1.00
Fairmont dist., ¾ lump.	1.00 to 1.10	.90 to 1.00	.90 to 1.00	.80 to .90	.90 to 1.00	.90 to 1.00
Fairmont, run-of-mine..	.90 to 1.00	.80 to .90	.80 to .90	.70 to .80	.80 to .90	.70 to .80
Fairmont dist., slack...	.75 to .85	.70 to .75	.70 to .75	.70 to .75	.75 to .85	.75 to .80
	July.	August.	September.	October.	November.	December.
Georges Creek	\$1.60 to 1.80	\$1.60 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80
Best Somerset	1.15 to 1.35	1.15 to 1.35	1.20 to 1.35	1.20 to 1.35	1.25 to 1.35	1.25 to 1.35
Somerset	1.10 to 1.15	1.10 to 1.15	1.10 to 1.15	1.10 to 1.15	1.15 to 1.20	1.10 to 1.15
W. Va. Freeport .....	.90 to 1.00	.90 to 1.00	.90 to 1.00	1.00 to 1.10	1.00 to 1.05	.90 to 1.00
Fairmont dist., ¾ lump.	.90 to 1.00	.80 to .90	.80 to .90	.80 to 1.00	.90 to 1.00	.90 to 1.00
Fairmont, run-of-mine..	.80 to .90	.70 to .80	.70 to .80	.70 to .80	.80 to .90	.80 to .90
Fairmont dist., slack ..	.75 to .80	.75 to .80	.75 to .80	.75 to .80	.75 to .80	.75 to .80

Pennsylvania RR. contract:—

	January.	February.	March.	April.	May.	June.
Georges Creek	\$1.50 to 1.90	\$1.60 to 1.80	\$1.40 to 1.90	\$1.50 to 1.80	\$1.60 to 1.80	\$1.50 to 1.80
Best Miller vein	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50
Miller and Moshannon ..	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25
Best gas coal, ¾ lump..	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45
Best gas, run-of-mine..	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35
Best gas coal, slack....	.75 to .85	.70 to .75	.70 to .75	.70 to .75	.75 to .85	.75 to .85
Ordinary Clearfield ...	1.05 to 1.15	1.05 to 1.15	1.05 to 1.15	1.05 to 1.15	1.05 to 1.15	1.05 to 1.15
Ordinary Latrobe	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10
	July.	August.	September.	October.	November.	December.
Georges Creek	\$1.60 to 1.80	\$1.60 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80	\$1.50 to 1.80
Best Miller vein	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50	1.35 to 1.50
Miller and Moshannon ..	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.15 to 1.25	1.20 to 1.25	1.15 to 1.25
Best gas coal, ¾ lump..	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45	1.35 to 1.45
Best gas, run-of-mine..	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35	1.15 to 1.35
Best gas coal, slack ...	.75 to .85	.75 to .85	.75 to .85	.75 to .85	.75 to .85	.75 to .85
Ordinary Clearfield ...	1.05 to 1.15	1.05 to 1.15	1.05 to 1.15	1.05 to 1.15	1.10 to 1.15	1.05 to 1.15
Ordinary Latrobe	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.00 to 1.10	1.05 to 1.10	1.00 to 1.10

PITTSBURGH AND LAKE ERIE RY. TONNAGES.

Details.	1907.	1908.	1909.
Pittsburgh district gas and steam.....	10,651,054	8,089,120	9,486,912
Connellsville district coking coal.....	185,844	13,605	428,669
Wampum district steam and block coal.....	54,164	26,904	16,571
Coke	4,925,396	3,056,395	5,688,583
Total	15,816,458	11,186,024	15,620,735

Figures are only for coal and coke originating on tracks of this company.

THE CHICAGO MARKET IN 1909.

Readjustment defines, more accurately than any other word perhaps, the more superficial changes that have taken place in the Chicago coal trade during the year 1909. The largest industrial buyer in this market is the United States Steel Corporation. During the year it severed commercial relations with the company that for many years had been supplying it with fuel, broke up its fuel requirements for the year into fragments and scattered them among various western coal shippers, and then later in the year purchased and took possession of lands and mines in the Danville district, which this year it will operate to supply its heavy fuel requirements for South Chicago and Gary.

Otherwise there was perhaps no specially notable concentration of western coal operations here into strong hands. But there has been reorganization. The so-called Walsh properties on the Southern Indiana RR., over-capitalized, were sold at foreclosure, bought in by the bondholders and under the new plan safeguarded from a second like fate, save under the most extreme operating conditions. Another big producing interest, the Dering Coal Co., passed into the hands of a receiver and at this writing is still operated under the eye of the courts, though leased by the receiver to the Brazil Block Coal Co. for a year under a small tonnage royalty basis. Its old stockholders are still hoping that some form of reorganization may be brought about which will enable them to retain their ownership.

Large western railroad systems have continued to operate their coal mines, purchased for that purpose in recent years, but no notable developments towards further concentration of coal lands by the carriers have come to the surface. The appalling disaster which happened at the Cherry mine of the Chicago, Milwaukee & St. Paul RR. is not known to have discouraged the ownership and operation of coal mines by the big western railroad companies but it can not be said that the year 1909 marked in the West any special progress towards the concentration of coal properties into fewer and stronger ownerships.

Commercially it was a bad year during the earlier months for the western producing companies. Prices at which annual contracts were accepted last summer were lower than they had been in many years. In the spring when the outlook seemed gaunt, the Steel Corporation business hove into sight and looked particularly tempting, so much so that many operators were willing to accept the business practically at cost, in order to keep the mines open. And the pace thus set was kept up and advantage thereof taken by other large buyers, so that the steam coal contracts yielded scant profit to the producing companies. But there were some shut-downs of mines, particularly among the larger producers, who elected to operate a portion of their properties at full time, rather than all on partial time. And as the summer advanced the expansion of industrial activities were felt to a great and greater extent by the coal operators.

There was a steady though slow improvement to the situation and when during the later months of the year the car shortage became pronounced there was a period of excellence such as the trade had not experienced for years. The comparatively brief activity and strength did not perhaps fully atone for the long period of depression and financial ills that preceded it, but it served to relieve what otherwise have been a year of extreme and unprofitable monotony. Although the weather proved an aid in this later activity and although the lagging dealer trade also contributed its part to the satisfactory close, the back log to the

strength consisted of the industrial expansion, which called for a greatly increased tonnage of fuel. It was in the late autumn and early winter months that plants which had been running on partial time began to run steadily and plants which had been running steadily began to run evenings and nights as well. They consequently increased their fuel specifications, to such an extent that many of the producing companies found their entire (though increased) output absorbed by the requirements of their cheap annual contracts.

And about this time also the channels of transportation in and about Chicago became seriously congested and interfered sadly with the delivery of needed coal. The reason therefor has no special application to Chicago, for it was as wide as the country. During the past two years the western roads had neglected making improvements beyond those that were imperative and when heavier transportation demands were made upon them they were physically unable to respond. The steady growth of traffic and the stand-still condition of railroad facilities together constitutes one of the most serious industrial problems which the future has in store, particularly at points like Chicago where traffic is densely massed. There seems to be a splendid opportunity for the frequent recurrence of the trouble.

It was the expansion of the industrial fuels that gave the markets their zest and not the household requirements. The latter have had the normal increase of the year but nothing spectacular. The retail trade at Chicago locally witnessed some further progress towards concentration during the year, the largest retailing company, formed late in 1908, making some further acquisitions in yards. What effect this may have upon producing interests is not made clear, for owing to the strenuous demand for coal at Chicago the relations between buyer and seller over-spread ordinary channels during the latter part of the year. During the summer there was a period of sharp warfare in the Chicago retail market, during which prices fell to an unremunerative basis but upon restoration of prices there was a steadier condition of the market than had prevailed for some time.

The year 1909 also marked the further advance of the southern Illinois field as the principal center of production in the bituminous districts supplying this market, not so much by the opening of new mines, for development work of that sort was very slight, but by the increased capacity of mines previously in operation. There is an absence of statistics of the relative receipts of bituminous coal at Chicago from the various contributing States, but if a guess were hazarded it might be said that Illinois probably made some moderate gains relatively, though previous tonnages from western Pennsylvania, from West Virginia, Ohio and Indiana may have been maintained, for the total coal traffic of Chicago for 1909 considerably exceeded that of 1908.

There is to be noted, however, a serious shrinkage in the lake traffic of coal. The receipts of bituminous coal at Chicago fell from 518,818 tons in 1908 to 449,527 tons in 1909, the receipts in 1907 having been 414,534 tons. This bituminous coal went almost entirely to the by-product coking plant at South Chicago and the slight shrinkage in 1909 does not mean a loss of activity at the coke making plant but increased receipts of coal by rail. There has been an increased experimentation with western coals for coke making during the year, particularly with the coal of Franklin County, Ill., where considerable tracts were bought by eastern capitalists on account of their supposed superior coke-making qualities. The industry, however, has not yet become extensive, nor even well established.

Anthracite receipts at Chicago by lake were 790,759 tons in 1909, compared with 1,011,170 tons in 1908 and 1,093,058 tons in 1907. This serious loss is believed to mean two things, first that the buyers during the season of navigation were unusually slothful and second that the tendency of the western anthracite trade is towards all-rail shipments from mines at the expense of lake business. Concerning the dilatoriness of the dealer trade during the summer and autumn months there is ample evidence. The active buying did not begin until October and although after it had begun there remained from four to six weeks of navigation within which to get forward lake coal, yet the demand from all markets increased so at that time that sufficient coal could not fairly be appropriated to the Chicago market to fill up the docks as fast as they were depleted. The impression exists among prominent anthracite shippers at Chicago that the volume of the anthracite trade in this market is being fully maintained and therefore the receipts of all-rail coal are increasing at a rate at least equal to the diminishing volume of lake transportation.

THE CHICAGO MARKET, 1909.

Quality.	January.	February.	March.	April.
Anthracite egg, stove and nut, f. o. b. cars...	\$6.50	\$6.50	\$6.50	\$6.00
Anthracite grate, f. o. b. cars.....	6.25	6.25	6.25	5.75
yard prices 25 cents higher.				
Pocahontas, New River and Ocean (Georges Creek) mine-run	\$2.90 to 3.15	\$2.75 to 3.15	\$2.75 to 3.15	\$3.05 to 3.15
lump	3.55 to 3.80	3.40 to 3.80	3.30 to 3.55	3.40 to 3.55
Fairmont, W. Va., three-quarter	2.75 to 3.10	2.75 to 3.10	2.60 to 2.80	2.80 to 3.00
Kanawha splint lump	3.00 to 3.25	3.00 to 3.25	2.70 to 3.15	3.00 to 3.15
Youghiogheny three-quarter-inch lump	3.05 to 3.15	3.05 to 3.15	3.00 to 3.15	3.00 to 3.15
Hocking lump	2.90 to 3.15	2.85 to 3.15	2.85 to 3.15	2.85 to 3.15
Greene and Sullivan County, Ind., 4-inch lump	2.00 to 2.20	2.10 to 2.20	2.00 to 2.10	2.00 to 2.10
Greene and Sullivan County mine-run	1.70 to 1.90	1.70 to 1.90	1.70 to 1.90	1.70 to 1.90
Cartersville, Ill., 6-inch lump	2.30 to 2.50	2.15 to 2.50	2.10 to 2.25	2.10 to 2.25
Cartersville, Ill., nut	2.30 to 2.50	2.15 to 2.50	2.10 to 2.25	2.10 to 2.25
Springfield, Ill., lump	2.00 to 2.25	2.00 to 2.25	2.00 to 2.10	1.90 to 2.00
Springfield, Ill., mine-run	1.60 to 1.70	1.50 to 1.70	1.50 to 1.70	1.50 to 1.70
Springfield, Ill., screenings	1.20 to 1.40	1.30 to 1.40	1.30 to 1.40	1.35 to 1.50
Harrisburg, Ill., lump	2.25 to 2.50	2.30 to 2.70	2.15 to 2.50	2.15 to 2.35
Harrisburg, Ill., mine-run	2.00 to 2.25	2.00 to 2.25	1.90 to 2.15	1.90 to 2.15
Franklin County, Ill., lump	2.50 to 2.75	2.60 to 2.75	2.40 to 2.50	2.35 to 2.50
Franklin County, Ill., nut	2.50 to 2.75	2.60 to 2.75	2.40 to 2.50	2.35 to 2.50
Wilmington, Ill., lump	2.50	2.50	2.50	2.50
Coke, Connellsville 72-hour	4.75 to 5.00	4.65 to 5.00	4.60 to 4.90	4.50 to 4.65
By-product coke	4.75 to 5.00	4.65 to 5.00	4.60 to 4.90	4.75 to 5.15
Wise County, Va., 72-hour	4.60 to 4.85	4.50 to 4.85	4.40 to 4.85	
Quality.				
Anthracite egg, stove and nut, f. o. b. cars...	May. \$6.10	June. \$6.20	July. \$6.30	August. \$6.40
Anthracite grate, f. o. b. cars.....	5.85	5.95	6.05	6.10
yard prices 25 cents higher.				
Pocahontas, New River and Ocean (Georges Creek) mine-run	\$2.90 to 3.05	\$2.85 to 3.05	\$2.85 to 3.05	\$2.95 to 3.20
lump	3.15 to 3.45	3.25 to 3.55	3.15 to 3.40	3.40 to 3.60
Fairmont, W. Va., three-quarter	2.80 to 2.90	2.80 to 2.90	2.80 to 2.90	2.80 to 2.90
Kanawha splint lump	3.10 to 3.25	2.90 to 3.15	3.00 to 3.15	3.00 to 3.20
Youghiogheny three-quarter-inch lump	3.00 to 3.15	3.05 to 3.15	3.05 to 3.15	3.05 to 3.15
Hocking lump	2.90 to 3.15	2.90 to 3.15	2.85 to 3.00	2.90 to 3.00
Greene and Sullivan County, Ind., 4-inch lump	1.90 to 2.10	1.90 to 2.10	1.80 to 2.10	1.90 to 2.10
Greene and Sullivan County mine-run	1.65 to 1.75	1.65 to 1.75	1.65 to 1.75	1.65 to 1.75
Cartersville, Ill., 6-inch lump	2.15 to 2.25	2.15 to 2.35	1.90 to 2.15	2.15 to 2.35
Cartersville, Ill., nut	2.15 to 2.25	2.15 to 2.35	1.90 to 2.15	2.15 to 2.35
Springfield, Ill., lump	1.85 to 2.00	1.85 to 2.00	1.75 to 1.90	1.75 to 1.90
Springfield, Ill., mine-run	1.60 to 1.70	1.65 to 1.75	1.60 to 1.75	1.60 to 1.75
Springfield, Ill., screenings	1.55	1.50 to 1.65	1.40 to 1.50	1.20 to 1.25
Harrisburg, Ill., lump	2.15 to 2.25	2.15 to 2.25	2.10 to 2.25	2.15 to 2.25

Quality.	May.	June.	July.	August.
Harrisburg, Ill., mine-run	1.90 to 2.15	1.90 to 2.15	1.90 to 2.15	1.90 to 2.15
Franklin County, Ill., lump	2.20 to 2.35	2.25 to 2.35	2.15 to 2.35	2.35 to 2.50
Franklin County, Ill., nut	2.20 to 2.35	2.25 to 2.35	2.15 to 2.35	2.30 to 2.50
Wilmington, Ill., lump	2.50	2.50	2.50	2.50
Coke, Connellsville 72-hour	4.50 to 4.65	4.50 to 4.90	4.65 to 4.90	4.65 to 4.90
By-product coke	4.75 to 5.15	4.75 to 5.15	4.75 to 5.15	4.75 to 5.15
Quality.	September.	October.	November.	December.
Anthracite egg, stove and nut, f. o. b. cars...	\$6.50	\$6.50	\$6.50	\$6.50
Anthracite grate, f. o. b. cars.....	6.25	6.25	6.25	6.25
yard prices 25 cents higher.				
Pocahontas, New River and Ocean (Georges Creek) mine-run	\$2.95 to 3.20	\$3.05 to 3.20	\$3.15 to 3.25	\$2.95 to 3.15
lump	3.40 to 3.65	3.50 to 3.65	3.60 to 3.75	3.35 to 3.65
Fairmont, W. Va., three-quarter	2.80 to 2.90	2.90 to 3.00	3.00 to 3.10	3.00 to 3.10
Kanawha splint lump	3.00 to 3.20	3.20 to 3.25	3.20 to 3.30	3.20 to 3.30
Youghiogheny three-quarter-inch lump	3.05 to 3.15	3.00 to 3.15	3.00 to 3.15	3.00 to 3.15
Hocking lump	2.90 to 3.05	3.05 to 3.15	3.15 to 3.25	2.90 to 3.15
Greene and Sullivan County, Ind., 4-inch lump	1.90 to 2.10	2.25 to 2.30	2.50 to 2.75	2.40 to 2.50
Greene and Sullivan County mine-run	1.65 to 1.75	1.70 to 1.80	1.70 to 1.80	1.70 to 1.80
Cartersville, Ill., 6-inch lump	2.15 to 2.35	2.50 to 2.60	2.60 to 2.90	2.50 to 2.75
Cartersville, Ill., nut	2.15 to 2.35	2.35 to 2.50	2.50 to 2.80	2.40 to 2.75
Springfield, Ill., lump	1.75 to 1.90	2.15 to 2.25	2.25 to 2.50	2.15 to 2.25
Springfield, Ill., mine-run	1.60 to 1.75	1.65 to 1.75	1.65 to 1.75	1.65 to 1.75
Springfield, Ill., screenings	1.20 to 1.25	.95 to 1.05	.95 to 1.00	1.00 to 1.15
Harrisburg, Ill., lump	2.20 to 2.25	2.50 to 2.60	2.75 to 3.00	2.70 to 2.90
Harrisburg, Ill., mine-run	1.90 to 2.15	2.00 to 2.15	2.10 to 2.15	2.10 to 2.15
Franklin County, Ill., lump	2.35 to 2.60	2.75 to 2.85	3.00 to 3.25	2.90 to 3.00
Franklin County, Ill., nut	2.35 to 2.60	2.65 to 2.75	2.90 to 3.15	2.90 to 3.00
Wilmington, Ill., lump	2.55	2.75	2.75	2.75
Coke, Connellsville 72-hour	4.75 to 5.00	5.10 to 5.25	5.15 to 5.25	5.15 to 5.35
By-product coke	4.75 to 5.15	5.10 to 5.25	5.15 to 5.25	5.15 to 5.25

BEECH CREEK TONNAGES.

The operators in the Beech Creek district of Pennsylvania produced an increased tonnage last year, over the output of 1908, judging from the official report of the amount of tonnage carried over the Beech Creek Division of the New York Central, but the 1909 tonnage was below the tonnage shipped during the year 1907. During the 12 months ending December 31, 1909, the Beech Creek tonnage amounted to 8,486,851 tons, compared with 7,604,809 tons during the year 1908, an increase of 882,042 tons, or 11.59 per cent. The shipments during 1909 were 1,193,940 tons, or 12.3 per cent., less than during the year 1907, when the total shipments amounted to 9,680,791 tons. While trade was better last year than during the year previous, the tonnage was considerably below that of 1907. The prospects for the year 1910 are much brighter than was the outlook for 1909, and it is expected that the tonnage shipped during the present year will about equal that of 1907.

BALTIMORE & OHIO RR. TONNAGES.

Comparative statement of coal and coke moved on the B. & O. RR. during the calendar years named:—

Details.	1905.	1906.	1907.	1908.	1909.
Anthracite	1,050,108	974,524	1,406,648	806,344	23,302,161
Bituminous	22,315,469	25,046,832	26,686,836	22,499,973	882,597
Coke	4,910,568	5,844,243	4,923,708	3,115,903	4,602,611
Total	28,276,145	31,905,599	33,017,192	26,422,220	28,787,369

TRADE HISTORY OF 1909:

Each year witnesses many important and interesting incidents in the coal trade. In an industry in which so many people are engaged there are bound to be numerous changes in the personnel, while events that influence the business in greater or less degree arise from time to time. The only way that all of these circumstances can be recalled is by a perusal of the files of a trade paper, but we have selected some of the more notable of them from the columns of THE COAL TRADE JOURNAL for brief mention in this volume.

No small number of noteworthy events occurred during 1909, but perhaps the most striking feature was the unusual mortality among men prominent in one branch or another of the coal industry. Counting back a few months in 1908, to include Thomas M. Richards and James Kerr, death has indeed dealt heavily with the trade leaders, in the past year or more, and it is seldom that we have had occasion to print so many obituary notices in so short a period of time.

On the first day of the year 1909 Herman Justi, commissioner of the Illinois Coal Operators' Association, passed away. Coming to Illinois in 1898, after an earlier career as a banker in the South, Mr. Justi helped organize the operators' association and up to the time of his death administered its affairs in a highly creditable manner.

Another well-known coal man to pass away in January was Herbert F. Hanson, of the Hanson-Parker Co., Boston, whose death occurred on the 25th. For at least 20 years he had been ranked among the most prominent factors in the Boston market.

Early in the new year control of the Chesapeake & Ohio Ry. passed to Edwin Hawley, who thus became, for the first time, a factor of considerable importance in coal transportation affairs.

Arthur G. Yates, of Rochester, N. Y., died February 8th, aged 65. His trade career extended back to 1865, when he became identified with the Rochester agency of the Anthracite Coal Association. A few years later he founded the firm of Bell, Lewis & Yates, which developed into one of the leading soft coal mining concerns in western Pennsylvania. Subsequently becoming associated with the Buffalo, Rochester & Pittsburgh railroad and coal interests, Mr. Yates for years occupied a position of prominence in mining and transportation affairs.

The Dering Coal Co., Chicago, was placed in receivership in the month of March, following a break with the U. S. Steel Corporation, with which it had a large fuel contract. The unsold tonnage left on its hands by the severance of relations with the steel interests brought about a crisis in the affairs of the company.

Representatives of ten retail associations and exchanges in the East met in New York, March 23rd, and organized the Eastern Council of Retail Coal Merchants. Beyond electing officers, little was accomplished at that time toward establishing the order on a businesslike basis, and we have not heard of any subsequent meetings being held for that purpose.

Col. William Lamb, who was well-known in the trade 15 or 20 years ago, when he represented Pocahontas interests at Norfolk, died on March 23rd, at the age of 73.

The Trevorton Coal Land Co. (now the Trevorton Colliery Co.) commenced shipments from its new anthracite mine at Trevorton, Pa., about April 1st. The property under development was acquired a number of years ago by Messrs. Van Epps and Burton, of Cleveland, who spent a lot of money in opening a well-equipped colliery thereon.

By far the most notable traffic event of the year in bituminous circles in the East was the completion of the Virginian Ry., the new line from the West Virginia coal fields to tidewater at Hampton Roads. The ceremonies attending the opening of this road to traffic were held at Norfolk, April 2nd and 3rd, and were participated in by a number of prominent coal men and railroad officials, as well as by the late H. H. Rogers, who conceived the project and financed it largely out of his own personal resources. Work on the new pier at Sewalls Point was sufficiently advanced to permit of coal being handled, and the official guests witnessed the formal inauguration of service thereat.

William H. Sayre, first vice-president of the Lehigh Valley Coal Co., died April 7th, aged 77. With his death there passed away "the last of the old timers" in the anthracite trade, as he was the only surviving official whose career dated back to the early development period. He had been identified with the Lehigh Valley interests since the construction of the railroad, in the early '50s.

The wage agreement in the anthracite region expired April 1st, and the belief was strong in the trade that a strike or suspension would occur at that time, in view of the statements made by both sides as to their position in the matter of renewal. The mines continued in operation throughout the month, however, while negotiations were carried on, and finally, at a meeting held in Philadelphia April 29th, the old arrangement was extended, practically unchanged, for a further term of three years.

The differences in the central Pennsylvania district, where trouble threatened, were also patched up without resort to a strike. In this case the expiring contract was renewed for a period of one year, without important modification.

The Supreme Court rendered its decision with regard to the commodities clause of the Hepburn Act early in May. This decision had been awaited with interest because of its possible effect upon the relationship between the anthracite railroad and mining interests. Those who had anticipated a verdict that would make some radical re-adjustment necessary were relieved or disappointed, according to their interest in the matter, when the Supreme Court decided that stock ownership in mining companies did not bring the railroads into conflict with the law. Thus a majority of the anthracite roads were sustained in the legality of their position, and only two companies found it necessary to re-arrange their affairs. This was easily accomplished by having certain subsidiary corporations buy the coal at the mines and act as selling agents. Accordingly, a few weeks later, the Delaware, Lackawanna & Western Coal Co. was organized to handle the output of the Delaware, Lackawanna & Western RR. Co. and the Hudson Coal Co. took over the sale of the Delaware & Hudson coal. So it came to pass that the famous Hepburn Law, about which so much ado had been made, had practically no effect upon the coal trade.

The Alliance Coal Co. was formed at Chicago, in May, to take over the properties of the Indiana Southern Coal Co. and the Southern Indiana Coal Co., two concerns whose affairs had become involved some time previously. The transaction was in the interest of the bondholders and represented only a nominal change in ownership.

In the same month the North Western Fuel Co. transferred its dock properties at Milwaukee to the Milwaukee-Western Fuel Co. This action was for the purpose of securing greater concentration of dock interests at upper lake ports and avoiding duplication of facilities in handling the same line of tonnage.

The death of Henry H. Rogers occurred May 26th. By reason of his

ownership of the Virginian Ry. and his interest in West Virginia coal lands, Mr. Rogers would probably have become a decidedly conspicuous figure in the coal trade had he lived.

Early in the summer William A. Jepson, the Boston coal man, became rather largely interested in mining affairs in Illinois through the formation of the Southern Illinois Coal Co., to develop property in Williamson and Franklin Counties. Headquarters were established in Chicago, and the concern early became a market factor through the handling of the output of two mines already in operation on its property.

Actual construction work upon the Cape Cod Canal was begun June 22nd, August Belmont, head of the company that is building the new waterway, turning the first shovelful of dirt on the day mentioned. The undertaking is one of importance to shippers interested in the Down East trade, and it is to be hoped that nothing will come up to prevent the early completion of the work.

Mining operations in Nova Scotia have been considerably interfered with during recent months by a strike which began in the summer and involved the mine employes of that Province who are affiliated with the U. M. W. As the members of the P. W. A., a rival organization, remained at work, the tie-up was not complete except at plants where the American union dominated the situation. This was the case at Springhill, and the mines of the Cumberland Ry. & Coal Co. at that point are still idle and have been virtually abandoned for the time being, the management refusing to grant the miners' demands and at the same time not being inclined to import non-union men.

At the annual Pow-wow held at St. Louis, in July, Eugene Ambler, of Chicago, succeeded Thomas W. Ayers as Imperial Modoc of the Order Kokoal. Arthur M. Hull tendered his resignation as Imperial Pictor, and Charles E. Lester, of Philadelphia, was elected to take his place.

The differential of 15 cents a ton in freight rate on the so-called Big Vein coal from the Cumberland region was abolished in the fall, following an order issued by the Interstate Commerce Commission, which was later upheld by the courts. This was a concession which the operators of that region had been for years trying to secure from the railroads.

Col. John F. Wilson, for many years conspicuous in anthracite circles as general sales agent of the Lehigh & Wilkes-Barre Coal Co., retiring from that office in 1892, died at his home in North Plainfield, N. J., October 10th, in his seventy-sixth year.

By the completion of its line to Spartanburg, S. C., about the first of November, the Carolina, Clinchfield & Ohio Ry. secured additional railroad connections and widened the market available to the mining interests in southwestern Virginia for which the road affords an outlet. The line had been in operation as far as Bostic, N. C., for some time previously, and is carrying a growing coal tonnage.

The New River Operators' Mutual Association was formed the latter part of October by producers along the line of the Chesapeake & Ohio, to secure the correction of certain causes for complaint in regard to marketing methods.

About November 1st the U. S. Steel Corporation purchased the mining properties of the Hammond Coal Co. and certain associated interests in the Danville, Ill., district, which formerly belonged to the late Michael Kelly. The land thus acquired consisted of some 11,000 acres, and with other recent purchases the Steel Corporation now controls some 21,000 acres of Illinois coal land, which it is estimated contains enough tonnage to supply the requirements of its Illinois and Indiana plants for a period

of perhaps half a century. The Brazil Block Co., which leased the Hammond properties early in the year, surrendered its claim thereto when the holdings were taken over by the steel interests.

During the late fall plans were made for important changes in the sales agency arrangements of some of the largest Pocahontas producers, which will result in more highly competitive conditions in that field when the new plans are carried out early in 1910. The Pocahontas Fuel Co. was incorporated in November to market the output of the Pocahontas Consolidated Collieries Co., while at about the same time the Crozer-Pocahontas Co. was organized to act as selling agent for the Tierney interests. With other contemplated changes, a considerable percentage of the Pocahontas tonnage will be diverted from the channels through which it has moved since the early days of mining in that district.

The worst mining disaster of the year occurred November 13th at the mine of the St. Paul Coal Co. at Cherry, Ill., and resulted in more than 300 deaths.

In mining circles the year 1909 was marked by considerable progress along scientific and humanitarian lines. The research work of the U. S. Geological Survey, which has for its object both the conserving of mineral resources and the prevention of mine accidents, was carried on vigorously and systematically, and good results were achieved. The mine inspection departments of various States were also active in seeking to bring about better mining conditions, while a number of important producing interests formulated plans for bettering the working and social conditions of their employes.

A minor trade development of the year 1909 was the progress made in briquette making. Quite a number of mining companies have installed briquetting machinery at some of their plants and are taking at least an experimental interest in this new departure, and the proposition seems to be attracting more attention in the trade than ever before. Some operators think that it may offer a practical solution of the small coal problem; that slack and culm can by this method be utilized to better advantage than at present.

The proposition that steam coal is selling too cheaply and that the bituminous trade should be placed on a better basis, through exacting higher prices from the railroads and other large consumers, has received wide discussion in recent months and promises to be productive of some good.

The drought of the past year, in the anthracite region, was one of the most severe and long continued on record, and many bituminous districts also suffered from lack of water.

An odd feature of the year was the revival of the scheme to develop the Rhode Island coal deposits. While the activity in that direction has so far been more productive of literature than of coal, we have the assurance of the press agent that tonnage will be placed on the market in the course of a few months.

The shipments of coal and coke over the Norfolk & Western Ry. during the fiscal year ended June 30, 1909, including tonnage originating on the system and received from connecting roads, amounted to 13,239,387 tons, compared with 11,866,978 tons for the preceding year, an increase of 1,372,409 tons, or 11.5 per cent.

THE COAL DOCKS AT THE HEAD OF THE LAKES.

The increase of the coal business at the head of Lake Superior has been something marvellous. Only a few years ago it was a small matter. Last season nearly 10,000,000 tons of coal went into the lake, of which about 60 per cent. went to the docks of Duluth and Superior. In 1902 the business of the entire lake was 4,800,000 tons, of which some 60 per cent. came to these two cities.

There are now here docks for the discharge and handling of coal that are recognized the world over as the best and most rapid ever built. There are single docks where the coal can be taken out of a ship, loaded into cars or piled on the dock at the rate of more than 5,000 tons each ten hours, and it is expected that at one of the newest docks from 6,000 to 8,000 tons can be taken care of in that time.

There are no less than 19 immense coal receiving docks, with a combined storage capacity for 4,000,000 tons, and an annual handling capacity of probably twice that amount. These docks have cost in the neighborhood of \$18,000,000, and most of them are of new design and modern equipment.

The Head of the Lakes, that is, Duluth and Superior, is now one of the chief coal receiving centers of the world, and it is growing faster than any other. The vast region to the west and southwest that receives its fuel from here and the increase of manufacturing in this region are prime causes for this growth, and as long as the West expands the coal trade of this harbor will do the same.

Several of the newer docks here are electrically equipped, and there is no question that the rest will be as fast as possible. With the cheap electrical power now furnished here by the falls of the St. Louis River, this is the economical way of operating. The Hanna, Carnegie and Northern in Superior, and the Missabe in Duluth all use electricity, as do, also, a few others.

One of the leading classes of railway business from the Twin Ports is coal, for the most of what is received here goes forward to the interior. With the increase in the number and proportion of heating plants using hot water in interior cities there has come a demand for classes of coal that were waste a few years ago, and the price of buckwheat coal, the smallest size of anthracite, which a few years ago was \$2.00 to the retail consumer, is now \$5.50 a ton to the trade in this section.

Coal receiving and shipping interests are now almost altogether on the Superior side of the harbor. The Pittsburgh people have two docks at Duluth, and the North Western Fuel Co. one. So, too, have the Missabe R.R. and the Zenith Furnace Co., not commercial docks, strictly speaking. But practically all other coal interests are on the Wisconsin side and the extent thereof is shown in the following tabulation:

COAL DOCKS AT SUPERIOR, WIS.			
Owner.	Tons Cap'city	Owner.	Tons Cap'city
Reiss Coal Co.	155,000	Great Northern Ry. Co.	200,000
Berwind Fuel Co.	300,000	St. Paul & Western Coal Co.	200,000
P. & R. C. & I. Co.	225,000	Northern Coal & Dock Co..	225,000
P. & R. (new).....	400,000	Carnegie Dock Co.	200,000
North Western Fuel Co. ...	670,000	M. A. Hanna Dock Co.....	400,000
Lehigh Valley Coal Co.	175,000		
Pittsburgh Coal Co.	570,000	Total 13 docks	3,720,000

COAL DOCKS AT DULUTH, MINN.			
Owner.	Tons Cap'c'ty	Owner.	Tons Cap'c'ty
Pittsburgh Coal Co., No. 1.	200,000	Duluth, Missabe & Northern	
Pittsburgh Coal Co., No. 2.	190,000	Ry. Co. (for ry. use only)	250,000
North West. Fuel Co., No. 1.	90,000	Total 6 Docks	1,250,000
Boston Coal Dock & Wh. Co.	300,000	Superior and Duluth, 19	
Zenith Furnace Co.	220,000	docks, total	4,970,000

Total tonnage handled in a season is usually twice the storage capacity. Docks are filled and emptied and then filled again before close of navigation. The separation required for numerous different sorts of coal prevents the theoretical capacity of the docks being achieved, the difference depending on number of separate piles maintained.

The 13 docks now at Superior have a storage capacity of nearly 4,000,000 tons of coal and a handling capacity much greater than that. At the close of the 1910 season it is estimated that the docks at the Head of the Lakes will have a storage capacity of 5,000,000 tons of coal. The new Pittsburgh dock in Duluth alone will have a capacity of 1,000,000 tons ready next year.

UNLOADING A VESSEL NOW AND IN OLDEN DAYS.

In the old days men who shoveled coal in vessels—coal heavers, as they were called—made big wages, some of them as high as five dollars a day. Since the automatic diggers came this has changed and they do not earn so much.

In those times the stevedores received 25 cents a ton for discharging a vessel. Their expense was use of hoisting gear, engine and coal buckets. For this they took 12½ cents for themselves, the balance going to the men. The crew consisted of 12 men in the ship's hold and a man on the stage where the coal was landed. The men who did the wheeling of the barrows were paid by the owners of the coal, who, also, furnished the barrows.

Since the diggers came into use this has changed. A stage man is not necessary, nor is the wheeler, while the crew in the hold consists of but eight or ten men, who simply have to throw the coal down to the foot of the hatch. These men receive less pay and do not have to work as many hours as they did formerly.

HARD AND SOFT COAL CARRIED OVER THE READING.

The Philadelphia & Reading Ry. Co., from the carriage of anthracite and bituminous coal in its fiscal year ended June 30, 1909, earned \$17,698,227, gross, a decrease from the previous year of \$879,045, or 4.73 per cent. The tonnage of anthracite carried decreased from 13,537,464 tons to 11,586,839 tons, a loss of 1,950,624, or 14.41 per cent., while the tonnage of bituminous decreased from 10,816,439 tons to 10,574,314 tons, a loss of 242,125 tons, or 2.24 per cent. The coal tonnage (anthracite and bituminous) of the last three fiscal years and the average distance hauled, are shown below:

Coal Traffic.	1907	1908	1909
Tons carried	24,414,031	24,353,903	22,161,154
Average distance hauled, miles	110.9	113.9	115.4

SOME CONDITIONS AFFECTING OUR COAL PRODUCTION.

New York 'Sun' reprint in THE COAL TRADE JOURNAL, August 26, 1909.

The experience of the anthracite region in the past is being repeated in the bituminous coal industry of the present, perhaps in an aggravated form. Because of the wide areas of coal-bearing rock and the enormous and seemingly exhaustless supply the need for a control of that supply by powerful interests or by the Government does not, however, at first thought appear immediate. Yet there is reason to apprehend that the time is not far distant when the conservation of our stores of bituminous coal will require the placing of a curb upon their exploitation. Competent authorities in the United States Geological Survey have placed the stock of bituminous coal before its use began at about 3,000,000,000 tons. Fifty years ago the annual production was about 5,000,000 short tons. In 1907, the banner year of industrial activity of the United States, the production of bituminous coal was 395,000,000 tons, an increase in half a century of almost eightyfold. Such a record has not been made in any other country or in any other time.

The situation at the present time is that on account of the wide distribution of the bituminous coal fields, aggregating some 250,000 square miles of area (exclusive of approximately equal areas of lower grade coals and lignites), and the larger part of the coal being easy of access, there is no restriction upon the opening of new properties. The development of an anthracite mine, with its expensive breaker equipment, requires the investment of at least \$500,000 at the start. A bituminous mine can be opened up with a capital of a few thousand dollars, and although the already developed properties are capable of producing from 50 to 75 per cent. more than the great tonnage of 1907, new mines are constantly being opened and the railroads are called upon to furnish switches, spurs and shipping facilities to new properties when they are unable to supply the requirements of the operating mines. Every mine opened necessitates the further thinning out of an already inadequate supply of cars, yet it is a fact well known in the coal trade that if all the cars asked for could be furnished there would be an immediate glut of coal on the market and general demoralization of the industry. Five per cent. of surplus means at least 25 per cent. of decline in values, and while this may seem desirable to those who clamor for cheaper coal it is destructive to industry in the long run. It means lowering of wages and the instituting of other economies prejudicial to safety in the operation of the mines. Every new mine opened calls for miners to work it; and miners, who are as a class nomadic, seek employment in the newer mines for the reason that shorter distances have to be traveled from the shaft or pit mouth to the working places. This reduces the supply of labor at the older mines and naturally curtails the productive capacity. Reduction of output increases the cost of every ton produced, and the time must arrive when the older mines will be compelled to shut down as unprofitable investments.

Under existing conditions there does not appear to be any effective way of curbing the tendency on the part of coal land owners to develop their properties and of protecting the capital already invested in the industry. The railroads are powerless, for as common carriers they are compelled when called upon to supply the cars and furnish side tracks, whether there is a demand for the increased production or not. Each new opening adds to the spirit of rivalry and competition which seems to be the controlling influence. Mine competes against mine, district against district, county against county, State against State, and the United States

is outstripping all other countries in the production of coal. This means of course the boasted industrial supremacy of the world in our own times, and what do we care for posterity?

The year 1907 was one of the most prosperous years, if not the most prosperous year, in the history of bituminous coal mining; production reached its maximum, and prices were the highest in recent years; yet there were very few districts in which the margin between the cost of putting the coal on the railroad cars and the price at which it was sold was as much as ten cents a ton. In many States it was considerably less than that, and this margin must cover such losses as are due to explosions and other accidents, indemnities paid to employes or their heirs, and all extraordinary expenses. One such explosion as that at Monongah, W. Va., in December, 1907, will wipe out many years' profits. In 1908 not only was the margin of profit much reduced in all the coal mining districts but thousands and hundreds of thousands of tons were sold at less than cost of production. Of course it is poor business to continue production at a loss, but a coal mine is not a factory nor a quarry. It costs money to close down a coal mine. The mine must be kept clear of water; if the ventilation is stopped gas accumulates, falls of roof and coal occur, and after a period of idleness much repair work has to be done before operations can be resumed. It is often less expensive in the long run to continue the production of coal at a loss than to close down the mine.

Under our system of government the Federal authorities have no jurisdiction over mines in the several States. Were such a thing constitutional it would appear to be expedient to place some restriction on coal production by a system of license, and no license should issue for the opening of a new coal mine until ample evidence is given that the necessities of trade require it. It seems beyond reason to hope, under the competitive conditions above referred to, that the States will undertake to restrict developments in their respective jurisdictions.

Not the least of the difficulties with which the coal mining industry is beset is the apparant inability of the operators to enforce discipline among their employes. When humanity is shocked by the occurrence of some great disaster in a coal mine sympathy is poured out to the miners and invectives hurled against the mine owners. He is without a soul who would withhold sympathy at such a time, but scarcely less brutal is he who holds up to the condemnation of the world the persons in authority who have by all human endeavor striven to prevent the catastrophe. It is unfortunately true that the death record in the coal mines of the United States shows unfavorable comparison with other countries, but it cannot be truly said that the blame should attach to the operators alone. In the great majority of cases they who suffer death or injury in the coal mines are victims of their own carelessness or that of their fellow employes.

The year 1907, the year of greatest production in our history, was the darkest year in regard to casualties, the death list exceeding 3,000. At one time an epidemic of explosions seemed to exist, and scarcely had the echoes of one died away before another occurred. The victims from this cause numbered nearly a thousand, or approximately one-third of the total. The statistics show, however, that more than this number were killed by falls of roof—most of which are preventable if proper precautions are taken by the men or if, in fact, they obey the rules of the companies. In ordinary years the majority of accidents are due to roof falls or to other preventable causes, but these occur singly and are not chronicled in the news dispatches. Even in the case of explosions the cause may usually be traced, if any witnesses are alive to testify, to an act of carelessness or

disobedience. A prolific cause of mine explosions is what is known as a "windy shot," due to an improperly prepared blast, or the failure on the part of the miner to undercut his coal, depending, as he frequently does, on the powder to do his work for him. And yet all efforts to secure legislation which will permit the authorities to protect the miners against the consequences of their own acts are met with strenuous opposition on their part. It is a restriction of their liberties as American citizens, and miners have votes.

It is just here that the strength of the mine workers' union has been exercised for evil. Instead of giving aid in the securing of legislation which will hold miners criminally responsible for acts of carelessness or insubordination that may result in loss of life or damage to property every effort is made to prevent it. If in the effort to enforce discipline a mine employe is discharged for infraction of rules the result is in the majority of cases the precipitation of a strike, and the mine is laid idle for several days. The influence of the union could be made a power for good, but unfortunately it is not so directed. Coal mining is at best a hazardous occupation, and there is no line of industry in which a military type of discipline is so essential, except perhaps in the passenger service of railroads and steamships. In European countries, where fewer accidents occur, the operations are under strict police surveillance, and both miners and operators are made to obey the law. When this is done in the United States accidents will decrease, but the expense of mining will be increased and the price of coal will advance. On behalf of the mine owners it must be admitted that self, interest, if nothing else, compels the exercise of precautions against accidents. If they have no interest in securing the safety of their employes they have at least a desire to protect their own properties.

OREGON.

The tonnage in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	58,184	1902.....	65,648	1906.....	79,731
1899.....	86,888	1903.....	91,144	1907.....	70,981
1900.....	58,864	1904.....	111,540	1908.....	86,259
1901.....	69,011	1905.....	109,641	1909.....	90,000

Despite all the "discoveries" of coal in this State its output does not amount to much, and does not figure commercially, except for local use. There is no mine inspector, and data relative to tonnage and developments are difficult to obtain.

There are coal mines and prospects, but on account of limited means of transportation they have not been extensively worked or developed. About the only coal mining that is being done in Oregon at present is in Coos County.

B., R. & P. RY. TONNAGE.

The tonnage of bituminous coal carried over the Buffalo, Rochester & Pittsburgh Ry. for the calendar year 1909 amounted to 6,752,420 tons compared with 5,515,221 tons during the year 1908. The coke tonnage amounted to 527,545 tons during 1909 compared with 336,488 tons in 1908. The figures are only for coal and coke originating on the tracks of the company.

COAL MINED BY MACHINES IN THE U. S.

The total quantity of bituminous coal mined by machines in 1908 amounted to 123,183,334 tons. The total production of coal in the States where machines were employed was 328,270,373 tons, so that the machine-mined product was equivalent to 37.5 per cent. of the total output of these States. The machine production in 1908 was less than in 1907, but there has been a steady increase in the percentage that the machine-mined coal bears to the total output of the States where mining machines have been installed, and also in the number of machines in use. The number of mining machines employed was 6,658 in 1903, 7,663 in 1904, 9,184 in 1905, 10,212 in 1906, 11,144 in 1907, and 11,569 in 1908.

The tonnage mined by machine in each State is thus reported by the United States Geological Survey:—

State or Territory.	1904.	1905.	1906.	1907.	1908.
Alabama.....	741,170	1,584,942	1,641,476	1,762,948	1,783,516
Colorado.....	945,965	1,247,687	1,337,006	1,689,517	1,668,602
Illinois.....	7,110,902	8,697,547	11,585,419	15,134,401	15,045,004
Indiana.....	3,681,032	4,207,246	4,251,740	5,310,607	5,294,092
Iowa.....	175,742	186,224	193,666	108,022	71,463
Kansas.....	10,600	19,101	30,450	35,317	133,248
Kentucky.....	3,595,513	4,409,054	5,175,950	5,504,262	5,252,753
Maryland.....	484,373	468,822	427,450	479,110	208,134
Michigan.....	310,007	432,266	417,073	606,718	535,543
Missouri.....	376,505	375,194	419,288	486,882	479,850
Montana.....	482,924	752,665	974,806	984,368	713,217
New Mexico..	100,000	.....	.....	11,615	30,600
North Dakota.	125,097	97,789	97,035	136,700	104,884
Ohio.....	14,001,647	16,888,417	20,004,416	24,843,616	19,799,140
Oklahoma.....	42,594	40,203	33,357	24,311	31,352
Pennsylvania..	35,174,613	49,335,660	54,146,314	60,771,157	52,447,809
Tennessee.....	440,618	479,471	747,500	874,929	787,502
Texas.....	33,154	22,400	22,682	36,100	15,000
Utah.....	34,054	.....	1,000	1,800	.....
Virginia.....	245,536	399,029	424,343	788,793	1,035,832
Washington...	.....	.....	12,521	.....	20,000
West Virginia.	9,526,749	12,504,301	15,565,113	17,627,925	16,653,174
Wyoming.....	1,053,702	1,236,759	1,339,422	1,328,709	1,072,619
Total.....	78,692,497	103,396,452	118,847,527	138,547,823	123,183,334

The percentages of machine-mined production in years '03-'08 have been, respectively, 28.18, 28.8, 33.67, 35.1, 35.71, and 37.5. The average production for each machine in use in 1908 was 10,648 tons, against 12,381 tons in 1907, 11,638 tons in 1906, and 11,258 tons in 1905, the lower average in 1908 being due to the smaller number of days the mines were worked and the decrease in total tonnage. Of the machines in use in 1908, 6,380 were of the pick or puncher type, 4,992 were chain-breast machines, and 197 were long-wall machines. These include 26 pick and 23 chain shearing machines.

Pennsylvania, the leading State in the total production of bituminous coal, leads also in the number of machines employed and in total machine-mined production, 5,103 machines being employed in 1908 with a production of 52,447,809 tons, or 44.76 per cent. of the State's total. Ohio leads in the percentage of coal mined by machines, and has for several years been second in the total quantity of machine-mined coal, although West Virginia in both 1907 and 1908 had more machines in use than did Ohio. In 1908 there were 1,343 machines employed in the coal mines of Ohio,

and the machine-mined product amounted to 19,799,140 tons, or 75.37 per cent. of the total. West Virginia employed 1,574 machines, by which 16,653,174 tons, or 39.75 per cent. of the total, was mined. Illinois employed 1,217 machines and produced 15,045,004 tons of machine-mined coal, or 31.57 per cent. of the total. Kentucky, which stands seventh in the rank of coal-producing States, was second in the percentage of machine-mined coal to the total in 1908, over half of the total output of the State being machine-mined.

DANGER OF SPONTANEOUS COMBUSTION.

Spontaneous combustion, says the 'Scientific American,' is always to be feared in large masses of soft coal. It has been proved that temperature of English coal freshly stored rises in two or three days from 70 to 85 degrees F. and thereafter continues between 85 and 100 degrees F. Water may accelerate this rise of temperature by bringing oxygen in solution. Special care should be taken not to deposit dry coal upon any large quantity of damp coal. Wet coal should be spread in layers eight inches thick and allowed to dry 24 hours before being covered with a new layer. Sulphur compounds do not play an important part in spontaneous ignition.

Pyrites resist atmospheric influences well, with the exception of the variety called marcassite, which tends to decompose in the presence of water. The practice of ventilating piles of coal by means of little shafts and canals, although recommended by insurance companies, is rather injurious than otherwise, as it facilitates the absorption of oxygen. If ventilation is attempted, it should be mechanical and very energetic in order to produce a refrigeration which will counterbalance the oxidizing effect of the air.

THE IMPORTANCE OF BUNKER COAL.

The large new Cunarders burn about 1,000 tons per day when running at top speed and as a good part of their time is spent on the high seas and they do not dally long in port at either end of the route, it is safe to say that the two boats burn 30,000 tons of coal per month. Some people look upon the retail trade as the prime factor in the coal business, and study the weather as a means of ascertaining whether trade will be brisk or not. Retail trade is very important in its way and a cold snap means much to the dealers concerned with that class of business, but the coal industry in its larger aspect depends more than people realize upon the transportation and manufacturing interests. Simply those two boats that we refer to use as much coal in a year, 360,000 tons, as the cities of Rochester or Providence use in twelve months for domestic purposes; because annual household requirements, the demands of stores, small office buildings, the smaller hotels, etc., rarely exceed two tons per capita in the cities of the United States. It would take a good sized mine to supply the annual coal requirements of the Mauretania and the Lusitania.

During the year 1908, the production of Sullivan County, Pa., semi-anthracite, which is not included in the usual figures of anthracite shipments, was 491,710 tons. The figures for 1909 will be found, accredited to the several producers, in mine inspectors' figures in this volume.

PRODUCTION OF BITUMINOUS COAL IN PENNSYLVANIA.

County.	1904.	1905.	1906.	1907.	1908.
Allegheny	12,291,261	13,496,214	16,823,027	18,315,736	14,083,843
Armstrong	2,004,161	2,497,314	2,574,758	3,430,002	2,777,486
Beaver	67,923	82,676	81,531	109,575	222,711
Bedford	540,850	752,715	734,855	967,313	511,014
Blair	244,932	348,749	402,438	493,219	315,167
Butler	497,316	550,589	803,499	902,729	802,462
Cambria	10,829,087	12,600,891	12,439,152	16,526,621	14,138,462
Center	712,036	810,441	895,434	1,256,383	1,086,354
Clarion	551,532	714,478	719,548	1,078,367	972,785
Clearfield	5,746,870	7,248,305	5,944,745	8,034,711	6,247,534
Clinton	341,967	296,988	233,674	322,624	253,958
Elk	1,129,231	1,249,337	944,367	1,427,841	1,147,209
Fayette	19,231,011	24,250,989	27,044,451	29,260,622	19,474,417
Greene	80,646	105,000	144,251	158,187	145,644
Huntingdon	487,223	559,039	630,155	721,604	598,094
Indiana	2,683,951	4,477,431	4,657,457	7,471,257	6,843,179
Jefferson	6,043,564	6,393,985	5,160,195	5,964,397	4,853,313
Lawrence	182,662	267,470	257,716	220,718	142,639
Lycoming	78,837	33,844	44,425	51,956	34,626
Mercer	619,648	707,964	842,648	955,290	724,158
Somerset	5,317,161	6,412,672	6,674,191	7,769,708	7,404,945
Tioga	616,828	706,723	826,925	1,146,253	683,099
Washington	8,900,254	10,762,627	12,714,405	14,535,728	12,118,007
Westmoreland	18,695,454	23,011,546	27,573,420	28,916,721	21,499,292
Other counties and small mines	41,389	75,650	548,289	638,283	100,253
Total	97,952,267	118,413,637	129,293,206	150,143,177	117,179,527

(Reported by Geological Survey.)

ERIE RR. FUEL TONNAGES.

For fiscal years ending June 30th:—

Year.	Anthracite.	Bituminous.	Coke.	Total.
1908-9	9,331,192	5,955,843	1,556,382	16,843,417
1907-8	9,058,591	7,078,088	1,234,600	17,371,279
1906-7	8,268,049	7,388,700	2,291,282	18,258,031
1905-6	7,437,475	7,249,320	2,290,737	16,978,032
1904-5	7,089,796	3,960,215	1,727,183	16,556,194
1903-4	6,969,231	6,402,092	1,638,971	13,010,294
1902-3	5,907,878	5,519,527	1,854,017	14,281,422
1901-2	6,033,305	4,999,113	1,408,660	12,411,078
1900-1	6,240,320	4,359,556	1,674,331	12,274,207

TONNAGE OF DAVIS COAL & COKE CO.

Following is a statement of the coal department of the Western Maryland Ry. Co. (Davis C. & C. Co.) for the fiscal years between July 1, 1904, and June 30, 1909:—

	1904.	1905.	1906.	1907.	1908.	1909.
Coal	1,570,652	1,632,836	1,918,789	1,900,366	1,690,174	1,931,031
Coke	178,706	216,607	311,762	320,689	174,646	149,006

A HEAT UNIT—WHAT IT IS.

Compiled and revised by A. Bement, M. E.

A heat unit is the accepted standard for heat measurement among people speaking the English language. It consists of that quantity of heat necessary to raise in temperature one pound of water one degree Fahrenheit, or to be more explicit it is the quantity necessary to raise the temperature of one pound of water from 39 to 40 degrees Fahrenheit, at which temperature water is at its maximum density.

The capacity for a substance to receive heat is called its specific heat, and water is taken as the standard of substances, thus the specific heat of water is 1.0 and all other specific heats are compared to this. Thus, if it is a gas, its specific heat may be 0.23, showing that it takes less than one-fourth as much heat to raise a pound of gas one degree as it does water. The specific heat of water is almost exactly constant for different temperatures, thus it takes about the same amount of heat to raise a pound one degree in temperature at 40 degrees Fahrenheit as it does at 150; therefore, in all except the most exact calculations, the specific heat of water can be taken as 1.0 for any temperature, or in other words, is practically constant, which is not the case with gases.

The heating power of coal is expressed in heat units, or in the amount of energy units which will raise a pound of water one degree, which is called a British thermal unit, but more generally in its abbreviated form as B. T. U. The process used in determining the heating power of coal is to actually develop its heating capacity by burning and then absorbing the heat so generated in water, the temperature of which is taken before and after combustion.

The quantity of water being known, it is then an easy matter to calculate the heat imparted to it. This process is carried on in an instrument called a calorimeter, which consists of a metal receptacle that may be tightly closed, in which the coal is burned, this receptacle called the bomb being submerged in the water contained in a metal can made for that purpose, into which a thermometer is inserted to give an indication of the temperature of the water. During combustion motion is imparted to the bomb and combustion is started by an electric current at the right moment. Thus a miniature furnace is employed in which the weighed sample is burned and under conditions such that it shall impart its entire heat to the surrounding water.

Two general forms of calorimeters are employed, one using a chemical from which oxygen is derived to support combustion of the coal, this chemical being first mixed with the finely ground coal before it is introduced into the bomb. In the other pure oxygen gas is used, which is forced into the bomb under great pressure, so there is a sufficient quantity present to burn up the entire sample of coal. In this form of calorimeter the coal is usually introduced in the form of a small briquette and is ignited by electricity, wires being conveyed to the interior of the bomb for that purpose.

The New York State canals closed on the 15th of November after a season shorter by about a month than the average length, owing to the need for making way for the barge canal construction work. For the same cause there was a marked falling off in the total tonnage carried but as an offset to this it is believed that the average carrying charges received by boatmen figured up the best in 25 years.

PRODUCTION OF PIG IRON.

The American Iron and Steel Association receives from the manufacturers complete returns of the production of pig iron in the United States. Figures which follow are condensed therefrom:—

Fuel used.	PRODUCTION ACCORDING TO FUEL USED.					
	1904.	1905.	1906.	1907.	1908.	1909.
Anth. and coke.	1,288,140	1,674,515	1,560,686	1,371,554	355,009	698,431
Charcoal	337,529	352,928	433,007	437,397	249,146	376,003
Bituminous	14,931,364	20,964,937	23,313,498	23,972,410	15,331,863	24,721,037
Total.....	16,497,033	22,992,380	25,307,191	25,781,361	15,936,018	25,795,471

States.	PRODUCTION OF ALL KINDS OF PIG IRON.					
	1904.	1905.	1906.	1907.	1908.	1909.
Massachusetts...	3,149	15,987	20,239	19,119	13,794	18,388
Connecticut.....	8,922					
New York	605,709	1,198,068	1,522,659	1,659,752	1,019,495	1,733,675
New Jersey	262,294	311,039	379,390	373,188	225,372	294,274
Pennsylvania ...	7,644,321	10,579,127	11,247,869	11,358,549	6,987,191	10,918,824
Maryland	293,441	332,096	386,709	411,833	183,502	286,856
Virginia	310,526	510,210	483,525	478,771	320,458	391,134
Texas.....	75,686	38,699	92,599	55,825	24,345	29,072
Georgia.....						
Alabama	1,453,513	1,604,062	1,674,848	1,686,674	1,397,014	1,763,617
West Virginia ..	270,945	298,179	304,534	291,066	65,551	228,282
Kentucky	37,106	63,735	98,127	127,946	45,096	86,371
Tennessee	302,096	372,692	426,874	393,106	290,826	333,845
Ohio	2,977,929	4,586,110	5,327,133	5,250,687	2,861,325	5,551,545
Illinois	1,655,991	2,034,483	2,156,866	2,457,768	1,691,944	2,467,156
Michigan	233,225	288,704	369,456	†436,507	†348,096	†964,239
Wisconsin.....	210,404	351,415	373,323	322,083	148,938	348,177
Minnesota.....						
Missouri.....						
Colorado.....						
Oregon.....	151,776	407,774	413,040	468,486	313,071	382,766
Washington.....						
Total.....	16,497,033	22,992,380	25,307,191	25,781,361	15,936,018	25,795,471

†Includes small tonnage produced in Indiana.

As will be noted by the tabulation printed above, Pennsylvania produced almost twice as much pig iron as any other State in 1909. The figures of Pennsylvania's output for the first and last halves of the year are 4,775,079 tons and 6,163,745 tons respectively.

The number of furnaces in blast in these, the largest producing States, on June 30th and on December 31st, illustrates an improvement in the iron trade in the last half of 1909:—

Pennsylvania—total furnaces, 162; in blast June 30th, 103; in blast December 31st, 134. Ohio—total furnaces, 74; in blast June 30th, 44; in blast December 31st, 61. Illinois—total furnaces, 26; in blast, June 30th, 19; in blast December 31st, 23. Alabama—total furnaces, 51; in blast June 30th, 19; in blast December 31st, 29. New York—total furnaces, 28; in blast June 30th, 15; in blast December 31st, 17. Total: furnaces 469; in blast June 30th, 258; in blast December 31st, 338. In 1908, 236 furnaces were in blast at the close of the year.

On December 31st, 1909, there were 14 entirely new furnaces in the course of erection, all of which will use mineral fuel, as follows: New York 1;

Pennsylvania, 7; Ohio, 3; Indiana, 2; and Michigan, 1. In addition 1 furnace in Pennsylvania and 1 in Virginia were partly erected but work on their construction had been indefinitely suspended. 11 furnaces are being built, 10 mineral fuel and 1 charcoal, as follows: New Jersey, 1; Pennsylvania, 3; Virginia, 1; Georgia (charcoal), 1; Tennessee, 1; Alabama, 1; Ohio, 1; Illinois, 1; and Wisconsin, 1.

ELECTRIC HAULAGE MEANS LARGER MINES.

Mention is made from time to time of the improved character of the buildings at mining plants, as compared with those characterizing such operations in earlier years. Perhaps the question has arisen as to why, with a reduced margin of profit on the tonnage produced, more money is spent on buildings. Very likely the introduction of electric haulage has much to do with the changed conditions. In the olden days, when mules were used exclusively, the length of profitable haul was very limited, and it was understood that when operations progressed beyond that point it was cheaper to abandon a plant and move on to some other place, where a new opening would render coal deposits accessible with little or no underground haulage.

This meant the abandonment of buildings at original plant, and consequently they were in the first instance put up as cheaply as possible, and practically nothing was spent upon maintenance. This often resulted in an uneconomical condition if the coal deposits held out longer than was anticipated. With electric haulage the area of underground operations is much enlarged, and it is profitable to continue work at one shaft or other opening for many years longer than was formerly the case. So it is profitable to put up more substantial buildings, and, indeed, the well-built structures necessary for the proper installation of electric equipment form the keynote for a new style of mine architecture. Probably the whole matter of improved buildings at coal mining plants hinges upon the change in haulage arrangements.

BITUMINOUS COAL RESOURCES OF THE UNITED STATES.

An estimate of our bituminous coal fields, prepared with much care by M. R. Campbell, of the United States Geological Survey, shows that the total quantity of coal originally stored in the ground was about 2,200,000,000,000 short tons. From this supply there were mined, according to the Survey's figures, to the close of 1906, about 4,625,000,000 short tons.

Assuming that for every ton of coal mined there is a half-ton lost, this represents an exhaustion of nearly 7,000,000,000 tons, or only about one-third of one per cent. of the total supply. We produced and consumed of bituminous coal in 1906 (in round numbers) 343,000,000 short tons, which represented, say 500,000,000 tons of exhaustion, for our practice in this regard is improving with each year, and less coal is lost per ton mined than formerly. At this rate, if no increase were to be allowed for, the bituminous coal supply would last about 4,000 years.

Taking into account, however, the probable rate, first, of increase, and, later, of decrease in production, the opinion is expressed that the bulk of the cheaply mined bituminous coal will be exhausted within 200 years; but when the period of decreasing production sets in, the need for fuel will doubtless be supplied in considerable degree by the utilization of other forces of nature, thus extending the life of the bituminous coal fields.

SAULT CANAL TRAFFIC, 1909.

Month.		U. S. Canal	Canadian.	Total.
April,	Anthracite	18,515	.....	18,515
	Bituminous	48,375	60,594	108,969
May,	Anthracite	203,367	38,178	241,545
	Bituminous	476,536	251,295	727,831
June,	Anthracite	157,437	30,900	188,337
	Bituminous	911,166	145,169	1,056,335
July,	Anthracite	129,524	52,060	181,584
	Bituminous	923,532	498,569	1,422,101
August,	Anthracite	111,164	57,400	168,564
	Bituminous	1,099,844	387,088	1,486,932
Sept.,	Anthracite	59,095	59,100	118,195
	Bituminous	1,021,073	298,827	1,319,900
Oct.,	Anthracite	173,781	15,576	189,357
	Bituminous	876,051	212,624	1,088,675
Nov.,	Anthracite	156,520	98,420	254,940
	Bituminous	592,358	431,333	1,023,691
Dec.,	Anthracite	51,350	.....	51,350
	Bituminous	201,605	91,600	293,205
Totals		7,211,293	2,728,743	9,940,026

For the season 1909:—

Total anthracite, 1,412,387

Total bituminous, 8,527,639

Same time 1908:—

Total anthracite, 1,384,743

Total bituminous, 8,517,717

Net tons of 2,000 lbs.

The season on the American canal opened April 20th and closed December 11th, while the Canadian canal was open April 21st and closed December 16th.

Shipments through this channel during a term of years have been as below:

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	3,776,450	1902.....	4,812,478	1906.....	8,739,255
1899.....	3,940,887	1903.....	6,937,633	1907.....	11,400,095
1900.....	4,486,977	1904.....	6,454,869	1908.....	9,902,460
1901.....	4,593,136	1905.....	6,509,056	1909.....	9,940,026

HARD COAL PRICES AT THE MINES.

C. E. Henderson, formerly first vice-president of the Philadelphia & Reading C. & I. Co., was questioned as to the average prices of anthracite coal at the mines from 1889 to 1906 during a session of the Attorney General's trust investigators. He said that the average price for prepared sizes at the mines in 1900 was \$2.40 and it advanced to \$3.29 in 1906, and \$3.31 in 1908. For small sizes the average in 1900 was 89 cents and the advance was to \$1.11 in 1906 and \$1.25 in 1908.

Mr. Henderson furnished the following schedule of prices of coal at the mines in the years named:—

	Prepared.	Small.	Average.		Prepared.	Small.	Average.
1900.....	\$2.40	\$0.89	\$1.85	1905.....	\$3.28	\$1.16	\$2.44
1901.....	2.63	1.07	2.08	1906.....	3.29	1.11	2.30
1902.....	2.82	1.16	2.16	1907.....	3.27	1.15	2.33
1903.....	3.33	1.50	2.66	1908.....	3.31	1.25	2.35
1904.....	3.31	1.27	2.54				

UTILIZATION OF THE 1908 OUTPUT.

Taking up the statistics relating to the production and distribution of coal in this country, which stands at the head of the coal producers of the world, it appears that the total for the year 1908 was 415,842,698 net tons, divided as follows: Anthracite 74,347,102 gross; bituminous 332,573,944 net tons. Of the production there were 39,440,837 tons used for coke-making, with a yield of 26,033,518 tons, valued at an average of \$2.40 per ton, at the ovens. There was an export trade of 11,853,177 net tons, and an import of 1,469,146 tons.

Estimating the population at 90,000,000 people at the present time, the net result was nearly five tons per capita, for all purposes. Were one to deduct the large proportion of our people, who are not coal users to any particular degree, it can readily be seen that there was an even greater per capita use of coal, for industrial and domestic purposes, in the important coal-burning States.

There was a considerable quantity of the production used for steam and other purposes, in and about the mines, as shown below:

	Net tons, Anthracite.	Net tons, Bituminous.
At Mines	8,614,540	8,585,837
Local use	1,720,962	10,141,923
Leaving as shipments	72,933,252	281,617,840
Used for coke		*32,228,344
Value per ton, at mines	\$1.90	\$1.12

*This is coal used at mines only, for coke making. More than 7,000,000 tons of "shipments" were also devoted to this purpose.

	Anthracite Gross tons.	Bituminous. Gross tons.
Our exports were	2,752,358	9,100,819
Our imports were	16,484	1,452,662

Exports were mainly to Canada and to Mexico, with a smaller quantity to the West Indies. The imports are from Nova Scotia to New England, and Australia and British Columbia to Pacific Coast ports.

The number of employes of all grades is put at 174,174 persons in the anthracite and 516,264 in the bituminous fields. As to tons, per annum, per employe, it is said to be 478 in the anthracite and 644 in the bituminous. The large figures in the latter are due to the great use of mining machines, for there were 11,569 in use, with a total product therefrom of 123,183,334 net tons for the year. This was 37.52 per cent. of the total output of the bituminous mines, and a yearly average of 10,648 tons per machine.

There were 7,212,493 tons shipped from the mines to more or less distant points, to be there made into coke. All of the coal made into coke in by-product ovens is shipped from the mines to the ovens, and is consequently included in the shipments. This quantity amounted to 4,201,226 tons in 1908, leaving about 3,011,000 tons made into coke in bee-hive ovens located at a distance from the mines.

Hereafter a systematic record will be kept of the steaming efficiency of all naval vessels, an officer having been detailed recently to supervise the work. The principal object is to promote the more economical use of coal, and to that end prizes will be divided among the engine-room force making the best showing at the end of the year.

SHIPMENTS OF ANTHRACITE SMALL SIZES.

The shipments of the small or steam sizes of anthracite coal during the year 1890 amounted to 8,460,781 tons. Between 1890 and 1899 the output doubled, and in 1905, which was the largest prior to 1907, it was nearly treble the tonnage of 1890. The shipments for ten years were as below:—

Year.	—Sizes above pea—		—Pea and smaller—		Total shipments.
	Quantity.	P. ct.	Quantity.	P. ct.	
1899.....	31,506,700	66.1	16,158,504	33.9	47,665,204
1900.....	29,162,459	64.7	15,945,025	35.3	45,107,484
1901.....	34,412,974	64.2	19,155,627	35.8	53,568,601
1902.....	19,025,632	61.0	12,175,258	39.0	31,200,890
1903.....	37,738,510	63.6	21,624,321	36.4	59,362,831
1904.....	35,636,661	62.0	21,855,861	38.0	57,492,522
1905.....	37,425,217	60.9	23,984,984	39.1	61,410,201
1906.....	32,894,124	59.1	22,804,471	40.9	55,698,595
1907.....	39,332,855	58.61	27,776,538	41.39	67,109,393
1908.....	38,319,325	59.3	26,345,689	40.7	64,665,014

The output of washery coal in 1906, chiefly steam sizes, was 3,846,501 tons, or 6.91 per cent. of the total production. In 1907 the washery production was 4,784,862 gross tons, or 6.21 of the total production. In 1908 it amounted to 3,646,250 tons, or 5.64 per cent., of which 38,617 tons was above pea.

LARGE AND SMALL COAL SHIPPED, BY COMPANIES.

The division of shipments by the several companies for 1909, as reported by W. W. Ruley, showed as below:—

Company.	Small.	Total shipments.	—Per cent. small—		
			1907.	1908.	1909.
Philadelphia & Reading Ry.	1,626,982	11,920,757	11.19	12.30	13.65
Lehigh Valley RR.....	1,245,295	10,296,627	12.03	12.29	12.09
Central RR. of N. J.....	1,180,754	7,938,370	11.51	11.87	14.87
D., L. & W. RR.....	1,595,322	9,531,695	18.64	17.76	16.74
D. & H. Co.....	1,034,242	6,936,946	14.01	11.01	16.85
Pennsylvania RR.....	847,226	5,966,543	13.12	12.67	14.21
Erie RR. Co.....	1,454,398	7,461,121	17.36	17.30	19.49
N. Y., O. & W. Ry.....	422,617	2,717,826	12.48	11.58	15.15
Total.....	9,407,236	61,969,885	13.68	13.38	15.18

"Small," in this table, is below No. 1 buckwheat.

ANTHRACITE SHIPMENTS BY COMPANIES.

Shipments by the various coal companies for 1906, 1907, 1908 and 1909, were as follows:—

Companies.	1906.	1907.	1908.	1909.
Philadelphia & Reading.....	11,258,295	14,013,795	12,578,833	11,920,757
Lehigh Valley.....	9,971,699	11,532,255	10,772,040	10,296,627
Jersey Central.....	6,983,217	8,714,114	8,495,425	7,938,370
Del., Lacka. & Western RR.....	9,201,875	16,237,419	10,088,697	9,531,695
Delaware & Hudson.....	5,346,695	6,562,768	6,461,666	6,136,946
Pennsylvania RR.....	4,856,004	6,203,271	6,019,457	5,966,543
Erie.....	5,636,537	7,151,683	7,450,175	7,461,121
N. Y., Ontario & Western.....	2,444,273	2,689,089	2,798,871	2,717,826
Totals.....	55,698,595	67,109,393	64,665,014	61,969,885

THE ANTHRACITE AGREEMENT.

The following is a verbatim copy of the anthracite agreement signed in Philadelphia in settlement of the anthracite trouble of 1909:

"WHEREAS, pursuant to letters of submission signed by the parties interested in 1902 'all questions at issue between the respective companies, and their own employes whether they belong to a union or not,' were submitted to the Anthracite Coal Strike Commission to decide as to the same and as to 'the conditions of employment between the respective companies and their own employes,' and the said Strike Commission under date of March 18, 1903, duly made and filed its award upon the subject matter of the submission and provided that said award should continue in force for three years from April 1, 1903, and the said period has expired,

"And whereas, by agreement dated May 7, 1906, it was stipulated that 'the said award and the provisions thereof and any action which has been since taken pursuant thereto, either by the Conciliation Board or otherwise, shall be extended and shall continue in force for three years from April 1, 1906, namely, until March 31, 1909, with like force and effect as if that had been originally prescribed as its duration,'

"Now, Therefore, it is stipulated between the undersigned, in their own behalf and so far as they have power to represent any other parties in interest, that the said award and the provisions thereof, and any action which has been since taken pursuant thereto, either by the Conciliation Board or by written agreement between the representatives of the employers and employes, shall be extended and shall continue in force for three years from April 1, 1909, namely, until March 31, 1912, with like force and effect as if that had been originally prescribed as its duration.

"It is further covenanted and agreed as follows, viz.:

"FIRST—The rates which shall be paid for new work shall not be less than the rates paid under the Strike Commission's award for old work of a similar kind or character.

"SECOND—The arrangement and decisions of the Conciliation Board permitting the collection of dues on company property, and the posting of notices thereon shall continue during the life of this agreement.

"THIRD—Any employe discharged for being a member of a union shall have a right to appeal his case to the Conciliation Board for final adjustment.

"FOURTH—Any dispute arising at a colliery under the terms of this agreement must first be taken up with the mine foreman and superintendent by employe or committee of employes directly interested, before it can be taken up with the Conciliation Board for final adjustment.

"FIFTH—The employers shall issue pay statements designating the name of the company, the name of the employes, the colliery where employed, the half month, the amount of wages, and the class of work performed."

April 29, 1909.

The Philadelphia prices on soft coal can be ascertained with considerable accuracy by deducting 30 cents from the New York prices. Freight from central Pennsylvania to Philadelphia is \$1.25; to New York \$1.55. Freight from other districts are in accord with this proportionate difference. Of course there are times when trade conditions, and consequently prices, are slightly different in one market as compared with another, but as a rule the difference in freight establishes the difference in selling price.

ST. LOUIS, MO.

The coal supply of St. Louis is derived almost entirely from mines within a short distance of that city, and is received via the railroads which traverse the southern part of Illinois. Although Missouri is a State of important coal production, none of its tonnage is shipped to the largest city in that State. Altogether St. Louis occupies an unique position of isolation so far as the meeting of its coal requirements is concerned, and probably no other large city obtains its coal at such small expense for freight.

Receipts of coal by the several lines of railroad, etc., are thus given by the secretary of the Merchants' Exchange.

Route.	1905.	1906.	1907.	1908.	1909.
Baltimore & Ohio S.-W....	606,641	855,111	1,018,855	913,282	786,317
C., C. & St. Louis.....	166,641	855,111	1,018,855	913,282	139,187
Vandalia	655,154	554,991	738,092	606,770	750,957
Illinois Central	881,874	982,578	970,436	921,220	1,268,560
Wabash	321,227	279,009	371,084	393,111	268,617
Louisville & Nashville	495,952	580,238	387,353	279,086	271,716
Southern	789,994	773,528	1,101,832	584,601	535,587
Mobile & Ohio	140,606	101,471	88,929	84,662	94,732
Toledo, St. L. & Western...	59,942	54,414	84,749	85,437	109,388
St. Louis & O'Fallon.....	541,591	957,086	935,086	815,713	669,582
St. L., I. M. & S. (Ill. Div.)	209,195	141,006	405,180	425,860	608,731
St. L., Belleville & So.....	38,641	21,712	4,595	.....	.....
St. L., Troy & Eastern....	922,204	870,801	944,623	923,746	753,482
St. L. & Bellevue Electric..	370,906	359,215	252,608	201,362	190,528
Chicago & Eastern Ills....	122,657	133,720	118,738	121,477	303,835
Litchfield & Madison.....	460,126	592,602	699,195	493,452	571,975
East. St. Louis & Suburban.	120,220	303,252	397,942	240,897	202,414
From Ohio River.....	125,755	160,120	155,470	185,100	128,700
Total tons.....	7,027,950	7,795,839	8,743,047	7,365,091	7,654,308

RECEIPTS OF ANTHRACITE		COAL INCLUDED IN ABOVE.	
1895.....	207,784 tons	1900.....	180,550 tons
1896.....	218,955 "	1901.....	200,797 "
1897.....	172,933 "	1902.....	60,944 "
1898.....	225,606 "	1903.....	165,920 "
1899.....	292,118 "	1904.....	155,097 "
		1905.....	158,843 tons
		1906.....	174,226 "
		1907.....	265,571 "
		1908.....	236,036 "
		1909.....	236,040 "

Of the anthracite receipts, part was "shipped through," say 22,851 tons in 1909, as compared with 28,272 tons in 1908.

Receipts of coke, 1901, 212,608 tons; 1902, 163,600 tons; 1903, 205,465 tons; 1904, 171,162 tons; 1905, 222,305 tons; 1906, 328,400 tons; 1907, 371,880 tons; 1908, 162,280 tons; 1909, 171,570 tons.

COMPARATIVE YEARLY ANTHRACITE TONNAGES.

The shipments, not the entire production, for a series of years, are shown below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1895.....	46,511,477	1900.....	45,107,484	1905.....	61,410,201
1896.....	43,177,483	1901.....	53,568,601	1906.....	55,698,595
1897.....	41,637,864	1902.....	31,200,890	1907.....	67,109,393
1898.....	41,899,751	1903.....	59,362,830	1908.....	64,665,014
1899.....	47,665,201	1904.....	57,492,522	1909.....	61,969,885

STANDARD PREPARATION OF ANTHRACITE.

The percentages of foreign matter allowed are as follows:

Slate.—Broken, 1 per cent.; egg, 2 per cent.; stove, 4 per cent.; chestnut*, 5 to 7 per cent.; pea, 8 per cent.; buckwheat, 10 per cent.

Bone.—Broken, 2 per cent.; egg, 2 per cent.; stove, 3 per cent.; chestnut, 5 per cent.; pea, 10 per cent.; buckwheat, 10 per cent.

*(An allowance is made on chestnut of from 12½ to 15 per cent. pea coal.)

The Philadelphia & Reading purchase contracts read as follows: "All coal shipped under this contract shall be subject to inspection under the direction of a chief inspector to be appointed by the buyer, whose duty it shall be to see that the said coal, as well as all other coal coming under his jurisdiction, conforms to the following standard, viz.:

First. The coal shall be practically free from dirt as it leaves the lip screen before entering the car.

"Second. The coal shall be well sized, and made through and over the following square screen meshes, or their equivalent, viz.:

"Broken, through a mesh four inches square and over a mesh two and three-quarters inches square.

"Egg, through a mesh two and three-quarter inches square and over a mesh two inches square.

"Stove, through a mesh two inches square and over a mesh one and three-eighth inches square.

"Chestnut, through a mesh one and three-eighth inches square and over a mesh three-fourths inch square.

"Pea, through a mesh three-fourths inch square and over a mesh one-half inch square.

"Buckwheat No. 1, through a mesh one-half inch square and over a mesh one-fourth inch square.

"Buckwheat No. 2, or rice, through a mesh one-fourth inch square and over a mesh one-eighth inch square.

"None of the above sizes shall contain an admixture of a larger size sufficiently great to render the coal objectionable, nor respectively a larger proportion of any smaller sizes than is usually present in good merchantable coal; and it is specially agreed that neither egg, stove, nor chestnut coal shall contain more than five per cent. of larger sizes; that chestnut coal shall not contain more than ten per cent. of pea and five per cent. of No. 1 buckwheat; nor pea coal more than 15 per cent. of buckwheat No. 1, and five per cent. rice; nor buckwheat No. 1 more than 15 per cent. rice."

THE COAL FIELDS OF KENTUCKY.

Kentucky's coal product is drawn from two of the great coal fields of the country, and it is the only State which is thus favored. The coal beds of the great Appalachian system underlie the eastern counties of the State, extending entirely across it in a northeast-southwest direction; and the southern limits of the central or eastern interior field are found in the more northern counties of the western part. The total area underlain by coal-bearing rocks in eastern Kentucky is estimated at 10,270 square miles, and that in the western part of the State at 6,400 square miles. Up to the close of 1907 the western district had produced considerably more than half the total output of the State, but judging from recent developments in Pike, Johnson and other counties, it seems probable that the production of the eastern district will soon exceed that of the western.

TONNAGE AND VALUE OF UNITED STATES COAL.

The last United States Geological Survey report gives this statement of the coal production of the United States in 1907 and 1908, by States, with value at the mines:—

State.	Quantity 1907.	Value 1907.	Quantity 1908.	Value 1908.
Alabama	14,250,454	\$ 18,405,468	11,604,553	\$ 14,647,891
Arkansas	2,670,438	4,473,693	2,078,357	3,499,470
California and Alaska.....	24,089	91,813	21,862	69,650
Colorado	10,790,236	15,079,449	9,634,973	13,586,988
Georgia	362,401	499,686	264,822	364,279
Idaho	*7,538	*31,119	5,429	21,832
Illinois	51,317,146	54,687,382	47,659,690	49,978,247
Indiana	13,985,713	15,114,300	12,314,890	13,084,297
Iowa	7,574,322	12,253,012	7,161,310	11,706,402
Kansas	7,322,449	11,159,698	6,245,508	9,292,222
Kentucky	10,753,124	11,405,038	10,246,553	10,317,162
Maryland	5,532,628	6,623,697	4,377,093	5,116,753
Massachusetts			50	150
Michigan	2,035,858	3,660,833	1,835,019	3,322,904
Missouri	3,997,936	6,540,709	3,317,315	5,444,907
Montana	2,016,857	3,907,082	1,920,190	3,771,248
New Mexico	2,628,959	3,832,128	2,467,937	3,368,753
North Dakota	347,760	560,199	320,742	522,116
Ohio	32,142,419	35,324,746	26,270,639	27,897,704
Oklahoma	3,642,658	7,433,914	2,948,116	5,976,504
Oregon	70,981	166,304	86,259	236,021
Pennsylvania—Anth.	85,604,312	163,584,056	83,268,754	158,178,849
Pennsylvania—Bit.	150,143,177	155,664,026	117,179,527	118,816,303
Tennessee	6,810,243	8,490,334	6,199,171	7,118,499
Texas	1,648,069	2,778,811	1,895,377	3,419,481
Utah	1,947,607	2,959,769	1,846,792	3,119,338
Virginia	4,710,895	4,807,533	4,259,042	3,868,157
Washington	3,680,532	7,679,801	3,024,943	6,690,412
West Virginia	48,091,533	47,846,630	41,897,843	40,009,054
Wyoming	6,252,990	9,732,668	5,489,902	8,868,157
Total net tons.....	480,363,424	\$614,798,898	415,842,698	\$532,314,117

*Includes production of Nebraska and Nevada.

READING'S GREAT TONNAGE INCREASE.

Year ended June 30.	Anthracyte, tons.	Bituminous, tons.	Merchandise, tons.	Total, tons.
1909	11,586,839	10,574,314	18,452,888	40,614,041
1908	13,537,464	10,816,439	19,249,682	43,602,585
1907	13,223,780	11,190,250	24,414,314	48,828,344
1906	11,856,861	10,487,598	22,353,895	44,698,314
1905	12,029,000	9,184,000	18,695,000	39,908,000
1904	11,325,000	8,059,000	16,633,000	36,017,000
1903	7,933,000	8,437,000	18,228,000	34,598,000
1902	9,466,000	6,087,000	16,414,000	31,967,000
1901	10,524,000	5,018,000	14,535,000	30,077,000
1900	10,672,000	4,540,000	14,192,000	29,414,000

PROS AND CONS OF THE B. T. U. SYSTEM.

Much attention is being paid to buying steam coals on the B. T. U. basis and many of the analytical chemists are sending out circulars to coal men and manufacturers soliciting business. No doubt this method of buying is going to prove popular for a while and those who save money thereby (or think they do) will continue the plan. There are many objections to be overcome if this plan is to meet with universal approval. Perhaps the most serious is the distrust of the buyer on the part of the dealer. In spite of all safeguards the seller may throw around the testing, etc., he is in the hands of the chemist and by the time results are announced, in most cases the car of coal from which sample is taken is either burned up or buried beyond identification. It is impracticable, of course, to sample every car and taking even a liberal number of cars as an average, a particularly poor car would seriously affect the average basis of settlement, whereas, on the other hand, there is no sure way of improving materially the average.

While a coal man can have every faith in his coal and be willing to back this faith by putting up with a B. T. U. proposition, he knows very well that every car turned out is not going to get for him the maximum premium, and no matter how good the coal may be, it is going to run into an occasional penalty. A "roll" in the mine, a sulphur streak, careless loading, can be suggested as possible reasons for this and there is no way of telling about these things until the coal has proven unsatisfactory. A difference of ten cents a ton in most cases either doubles or wipes out profit, while with the manufacturer a difference of the same amount would make no difference in operating cost, or such a small difference as to be a negligible quantity. A concern burning 5,000 tons would be having its cost of operation too close to its gross income if a difference of \$500 would seriously affect its profits, while with the coal man, the same ten cents per ton would take all the profit away from this business.

WHY A DIFFERENCE APPEARS IN MARYLAND FIGURES.

There is a difference between the statistics of Maryland coal production as published by the Geological Survey and as shown by the report of the Cumberland & Pennsylvania RR. Co., which is usually taken as the official figures relative to the Cumberland coal trade. This difference is due to the fact that there are a number of small mines, local banks, etc., whose production is not included in the railroad company's statement, and while the coal sold locally at most of the mines is included, the local trade at a few of the larger mines is not reported by the C. & P. RR. Co. Neither does the railroad company's report show the amount of coal used at the mines for steam and heat, which is an item aggregating between 50,000 and 60,000 tons annually. So that, even after reducing the gross tons of the Cumberland & Pennsylvania RR. report to net tons, there is a difference of some 300,000 or 400,000 tons to be added to get the entire Maryland production as reported by the Geological Survey.

The 4,725 tons of coal burned by the Lusitania on a record trip across the Atlantic would probably be fuel enough to keep ten families warm for a generation or more; say a ton a month to each family for 40 years.

BY-PRODUCT COKE OVENS.

The following list of by-product coking plants is believed to embrace practically all of the United-Otto, Semet-Solvay and other makes of ovens that have been installed to date in the United States and Canada:—

United-Otto Plants.		No. of ovens.
Cambria Steel Co., Johnstown, Pa. (four installations).....		372
Pittsburgh Gas & Coke Co., Glassport, Pa.....		120
New England Gas & Coke Co., Everett, Mass.....		400
Dominion Iron & Steel Co., Sydney, Cape Breton.....		500
Hamilton Otto Coke Co., Hamilton, Ohio (two installations)..		100
Lackawanna Steel Co., Buffalo, N. Y.....		564
United Gas Co., Indianapolis.....		50
Lackawanna Steel Co., Lebanon, Pa.....		252
South Jersey Gas, Electric & Traction Co., Camden, N. J....		150
Maryland Steel Co., Sparrows Point, Md.....		200
Michigan Alkali Co., Wyandotte, Mich.....		30
Carnegie Steel Co., So. Sharon, Pa.....		210
Zenith Furnace Co., Duluth, Minn.....		50
Total		2,998

Semet-Solvay Plants.		Ovens.	Semet-Solvay Plants.		Ovens.
Syracuse, N. Y.....		40	Tuscaloosa, Ala.		40
Dunbar, Pa.		110	Total		1,372
Ensley, Ala.		240	Koppers Plant		Ovens.
Wheeling, W. Va.....		120	Illinois Steel Co., Joliet.		280
Sharon, Pa.		25	Rothberg Plants		Ovens.
Detroit, Mich.		120	Lack. Steel Co., Buffalo.		282
Halifax, N. S.....		10	Lack. I.&S. Co., Lebanon		5
Benwood, W. Va.		60	Retort Coke-Oven Co...		105
Boston		7	Von Bauer Plant		Ovens.
Chester, Pa.		40	Nova Scotia S. & C. Co.		
Lebanon, Pa.		90	Sydney Mines		30
Milwaukee, Wis.....		160	Bernard Plant		Ovens.
Geneva, N. Y.....		30	N. S. S. & C. Co.		
Chicago, Ill.		160	Sydney Mines		120
Steeltown, Pa.		120			

CENTRAL OF NEW JERSEY FINANCIAL STATEMENT.

The reports for the several fiscal years ended June 30th compare as below:—

	1905.	1906.	1907.	1908.	1909.
Gross	\$21,676,536	\$23,101,089	\$25,687,403	\$25,587,176	\$24,520,651
Expenses	11,946,762	12,779,866	14,164,118	15,466,638	14,738,192
Net	9,729,774	10,321,221	11,523,285	10,120,538	9,782,458
Other income	1,119,197	1,151,197	1,175,653	1,432,539	1,152,755
Total income	10,848,972	11,472,420	12,698,938	11,553,077	10,935,214
Additions and better-					
ments	2,697,701	3,373,789	3,512,061	2,000,000	2,000,000
Balance	8,151,270	8,098,621	9,186,876	9,553,077	8,935,214
Charges, taxes, etc....	5,816,550	5,812,715	6,916,059	6,429,473	6,397,226
Surplus	2,334,720	2,285,905	2,270,817	2,823,473	2,537,988
Dividends	2,193,704	2,194,424	2,194,844	2,194,944	2,194,944
Surplus.....	141,016	91,481	75,973	628,529	343,044

ELECTRICITY AN AID TO THE COAL TRADE.

The assertion that use of electric power by railways hurts the fuel business is untrue. The introduction of electricity has been a benefit to the coal trade, not a detriment nor an injury. The trolley business or electric street railway service has now been in existence but some 15 or 20 years, and yet there is no less than 12,000,000 tons per annum used for this purpose. The electric lights have been in general use only some 20 years, but coal requirements of 9,000,000 or 10,000,000 tons have developed in that direction. Even the telephone service requires an appreciable amount of coal for the furnishing of current. And this is all new business within the business career of the present generation.

The Baltimore & Ohio has, say, six motors for tunnel use in the city of Baltimore only. The New York Central operates electrically, for passenger service exclusively, 30 miles out of 3,120 miles, and the New Haven operates in part by electricity on 34 miles of the New York division; also on the New Canaan branch and a line near New Britain. This out of a total of 2,006 miles in its system. But all freight trains on all lines are hauled by steam.

Power houses use more than 75 per cent. as much coal as the locomotives performing similar service. Economy in electrical traction, so far as fuel is concerned, comes not so much from reduced tonnage of coal used as ability to use a cheaper grade of coal and the reduced expense of firing, brought about largely by means of automatic stokers instead of many firemen at individual furnaces.

The amount of electrical machinery introduced in and about the coal mines of the United States has made up a hundred-fold for the loss of coal tonnage incidental to the Grand Central improvements.

In general it can be said that the introduction of electricity, by creating new demands for coal, has been as beneficial to the coal industry as was the introduction of gas, or even more so.

Probably in the future the railroads of dense traffic will be operated by electricity, but coal will be needed to make it, and the increased facilities afforded by the better railroad service of the future will build up the country still more. The frequent service of electric lines seems to create traffic, so we may confidently look forward to the electric railroads of the future being vastly greater coal consumers than the steam railroads of to-day.

COAL USED FOR COKE AND COLLIERY CONSUMPTION.

The quantity of coal consumed in the manufacture of coke at the mines in the United States in 1908 was 32,228,344 tons, as compared with 50,289,322 tons in 1907, a decrease of 18,061,478 short tons, or 35.9 per cent., as compared with a decrease of 13.4 per cent. in the total production. The coal shipped to market and used in the manufacture of coke, and sold locally (which is considered a marketable product) amounted in 1908 to 399,256,861 tons, compared with 462,802,051 tons in 1907 and 399,323,294 tons in 1906. The colliery consumption in the anthracite region, which consists practically altogether of culm, averages from eight to ten per cent. of the total anthracite output. In 1908, out of a total production of 83,268,754 tons of anthracite, about 8,000,000 tons were used at the mines for steam and heat. The colliery consumption of bituminous coal amounts to two or three per cent. of the total production, and in 1908, out of a total of 332,573,944 tons of bituminous coal mined, 8,585,837 tons were used in the operation of the properties.

DIVIDENDS OF ANTHRACITE CARRYING ROADS.

A number of the anthracite companies increased their dividends in 1905 and at the end of the year every anthracite road was a dividend payer on a part at least of its capitalization. Certain further increases were made in 1906 and 1907, but 1908 and 1909 saw nothing paid by Erie.

The rate paid by the different companies in past years has been as follows:—

	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
The Reading Co. 1st pref....	4	3	4	4	4	4	4	4	4
The Reading Co. 2nd pref....	..	..	1½	4	4	4	4	4	4
The Reading Co. common....	..	..	..	1½	3½	4	4	4	5††
Lehigh Valley .....	..	..	..	1	4	5	6**	6**	6
Central RR. of N. J.....	5	8	8	8	8	8	8	8	10&2
Delaware, Lacka. & West....	7	7	7	7*	10*	10*	10*	10*	10*&65||
Delaware & Hudson	7	7	7	7	7	9	9	9	9
Pennsylvania RR.	6	6	6	6	6	7	7	6	6
Erie 1st preferred	1½	3	3½	4	4	4	2	0	0
Erie 2nd preferred .....	..	..	..	..	4	4	2	0	0
Erie common .....	..	..	..	..	..	..	..	..	..
Delaware, Susq. & Schuylkill..	4	5	6	6†	6	†	†	†	†
N. Y., Ontario & Western....	..	..	..	3	1½	2	2	2	2
Lehigh Coal & Navigation Co.	6	6	6	7	8	8	8	8	10&25#

*Ten per cent. "special" also paid. †Five per cent. "extra" also paid. ‡Not reported— all owned by the Lehigh Valley. **Four per cent. regular and two per cent. extra. ††One two per cent. dividend; one three per cent. dividend. #In two scrip dividends. ||Fifty per cent. in cash; fifteen per cent. in stock, worth 6 for 1.

COAL TONNAGE OF IOWA.

The tonnage in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	4,618,842	1902.....	5,904,766	1906.....	7,266,224
1899.....	5,177,479	1903.....	6,419,811	1907.....	7,574,322
1900.....	5,202,939	1904.....	6,519,933	1908.....	7,161,310
1901.....	5,617,499	1905.....	6,798,609	1909.....	*7,163,353

* Fiscal year.

The Chief Inspector of Mines furnishes the following report for the fiscal years ending June 30th:—

County.	Tons 1908.	Tons 1909.	County.	Tons 1908.	Tons 1909.
Monroe	2,167,061	2,029,130	Wayne	124,465	142,640
Polk	1,358,097	1,647,136	Keokuk	11,900	13,884
Appanoose ...	1,107,806	1,186,524	Guthrie	13,143	14,388
Mahaska	772,468	833,645	Page	14,045	14,054
Marion	327,745	292,607	Dallas	108,700	202,700
Boone	218,491	271,994	Greene	22,226	13,240
Wapello	244,214	22,987	Adams	17,760	18,413
Jasper	467,552	333,340	Various	46,443	86,467
Lucas	74,288	9,717	Total	7,155,435	7,163,353
Webster	59,031	60,487			

The coal product of Iowa is mined chiefly for local use within the State. A number of the cities of Iowa have coal mines within close proximity, if not within the city limits, and it is not necessary to find an outside market for more than a small proportion of the tonnage. Even the neighboring State of Minnesota takes little or none of the Iowa product.

OBSTACLES TO USE OF PEAT.

The possible utilization of the large peat bogs that exist in various parts of the country is a subject that comes up for discussion occasionally, and experiments with new types of machinery for preparing peat in marketable form are in progress at one place or another most of the time. But nothing has ever developed, in a practical way, from all of the inventions for treating peat that have been made. In certain European countries the peat deposits are being utilized both for heating and industrial purposes, but conditions are different abroad and it is probable that this fuel will not be used to any extent in the United States until coal is a good deal scarcer and dearer than it is now.

Three years ago a New England railroad company burned peat fuel for a time on some of its shifting and suburban locomotives. The locomotives moved satisfactorily upon the impulse of the unaccustomed fuel, but the engineers and firemen objected to the bulkiness of the big perforated cylinders of dried mud. There were various minor objections. A fuel, in short, which to supplant coal would have to show its superiority in practically every respect proved inferior in so many respects that the railroad's superintendent of motive power, after a short trial, quickly restored the standard fuel on all the locomotives.

In countries where peasant labor can be employed to supplement the machine briquettes and other peat preparations in comparatively limited quantities can be produced cheaply with machinery that is admittedly imperfect. But labor costs are such in the United States that until a practically perfect mechanical system has been devised coal will not have a formidable competitor in peat. Numerous processes and special types of machinery have been devised to put peat economically into the manufacturer's and householder's coal bin. Some of them are already good enough for European use, but the practically perfect system is yet to come.

THE WHALEBACKS NOT A SUCCESS.

When the "whaleback" steamers first appeared on the Great Lakes, some 15 years ago, it was believed that they marked a new era in the transportation of heavy commodities like coal and iron ore. Recently, however, this type of craft has been growing proportionately less numerous on the lakes, and now the representative of a shipbuilding concern says that their days are about numbered. While the whalebacks were up to expectations in the matter of cargo carrying capacity and economy of operation, it is explained that their hulls lie so deep in the water that the difficulty of loading and unloading more than offsets their advantages in other directions. The authority referred to above says that he expects to see the last of the whalebacks relegated to the scrap-heap in the course of the next few years.

WHEN OLD DISTRICTS BEGAN.

The tabular matter showing the commencement of operations in the seaboard bituminous districts, which appeared in earlier issues of the Annual, is omitted from this year's issue. By way of resume we might note:—

The Blossburg district was opened in 1840, Georges Creek in 1842, Broad Top 1856, Clearfield 1866, Meyersdale 1872, Chesapeake & Ohio 1878, Elk Garden 1881, Norfolk & Western 1883 and the Beech Creek in 1884.

PER CAPITA COAL CONSUMPTION.

The amount of coal consumed per capita in this country is ever an interesting question, showing as it does not only a large increase in trade demands as the population grows, but a steadily increasing call for coal far beyond the natural growth resulting from increased population. Of course this is by no means a new subject and many tabular statements bearing upon the matter have been printed. It is, we take it, appropriate to refer to the matter occasionally as statistics which tend to show a favorable trend to the coal trade are always interesting. We therefore give below the showing of coal output in the census years from 1830 forward and venture a guess as to the 1910 results.

	Anthracite.	Bituminous.	Total millions.	Population.
1910.....	75,000,000	380,000,000	455	90,000,000
1900.....	57,367,915	212,316,112	269	76,303,387
1890.....	46,468,641	111,302,322	157	62,622,250
1880.....	28,649,812	42,831,758	71	50,155,783
1870.....	15,664,275	17,371,305	33	38,558,371
1860.....	8,115,842	6,494,200	14	31,443,321
1850.....	4,138,164	2,880,017	7	23,191,876
1840.....	967,108	1,102,931	2	17,069,453
1830.....	215,272	104,800	...	12,866,020

The first column of tonnages shows the anthracite business reduced to net tons for purposes of comparison; the second column of tonnages, the official bituminous figures. In the fourth column is given an approximate total in millions, for the purpose of convenient comparison with the population figures.

The falling off in 1908 and the slow gain in 1909 prevents so favorable a showing for 1910 as at one time seemed probable, but all in all the showing is certainly a strong one and if the bituminous tonnage has failed to increase in the ratio of 100 per cent. in the past ten years, as it has done heretofore, the result is a very good one and the percentage of increase is quite up to what might be expected; considering that ratio of business growth always shows a tendency to decrease proportionately as the volume mounts to higher figures. A lessening percentage of gain is in nowise inconsistent with a growing trade.

JAPAN'S COAL INDUSTRY.

Coal comprises about 60 per cent. of the total mineral wealth produced by Japan. This industry has had a marvelous growth. In 1893 the coal output was 3,319,600 tons. Five years later, in 1898, it had risen to 6,749,600 tons, and ten years later to 14,825,362 tons. Of the latter total in 1908, there were exported 2,863,110 tons. Domestic consumption was distributed as follows, in recent years:—

	1887.	1892.	1897.	1902.	1907.
Ships	251,000	341,000	893,000	1,534,000	2,333,000
Railways	19,000	118,000	850,000	704,000	1,043,000
Factories	136,000	722,000	1,846,000	3,474,000	4,420,000
Salt Making	394,000	439,000	500,000	788,000	774,000
Total	830,000	1,711,000	4,900,000	6,501,000	8,571,000

THE GREAT IMPORTANCE OF PUMPING.

Drainage, always an important feature of coal mining, becomes more serious as the deposits nearer the surface are exhausted and lower levels are tapped. The experience of one operator who takes 28 times as much water as coal out of the ground is not at all unusual in the anthracite region—it is typical of general conditions. In some mines the proportion may be less, in some it is considerably greater.

Pumps costing \$20,000 or \$30,000 each are installed in chambers hewn out of solid rock hundreds of feet beneath the surface. Shafts are sunk to accommodate huge tanks which, loaded with water, are hoisted with un-failing regularity day after day and month after month. Underground tunnels thousands of feet long—sometimes miles long—are driven through rock, when the lay of the land permits natural drainage. Iron pipe, of varying diameter, is bought by the mile; and, when it is destroyed by the chemical action of the mine water, more is bought to replace it.

At a Scranton colliery has been installed a new hoisting apparatus which is said to be the nearest approach to perfection. Twin tanks are accommodated in the one shaft, and each brings up its load 34 times in an hour. As each tank holds 4,000 gallons, this means that the two together have an hourly hoisting capacity of 1,393 tons.

The filling and emptying of the tanks are entirely automatic. Down in the mines the tank falls into a sump and the water enters through a bottom which acts as a kind of valve. When the tank is full the pressure closes the valve and the upward journey begins. At the top of the shaft the tank is half overturned—that is also automatic—and empties into a small reservoir by which the shaft is surrounded. Besides the tank at this mine, there are pumps which send out 3,000,000 gallons a day.

Like all the other branches of anthracite coal mining, drainage has become vastly more expensive in recent years than it used to be. This is partly due, of course, to the rise in the prices of all materials, but it is due more to the extension of the mines, both laterally and vertically. When one seam is worked out and is of no more value it has to be drained just the same as ever, in order that the workings beneath it may be kept in safe condition for the mine workers. Thus the area which must be drained is constantly increasing.

COAL YARD SITES AS AN INVESTMENT.

New York City is one place where coal yards have been ousted from their old sites to the advantage of the owner of the real estate, for if the dealer was his own landlord and had a well situated inland location the increase of values from the growing neighborhood has given him a good advance and when he sold the old yard his new plant in a cheaper district has been "all velvet." Florists on Long Island have been equally well favored. Their suburban acreage having been cut up into lots and put into the market, has made many of them very comfortably off in this worlds' goods. As a general rule elsewhere coal yards, for convenience, have been placed either on or near the water front, or railroad, and improvements do not usually extend in that direction, although cases have been known where the coal yard was taken for factory use and a slight advance paid over the assessed valuation. In Philadelphia the people in the coal trade who were forced to move by railroad changes of grade, etc., seem to have been fortunate in gaining better facilities and establishments.

CONNELLSVILLE COKE OUTPUT.

The following tabulated statement shows the total number of ovens at the close of each year, the annual output, average price and gross revenue of the region at certain dates from 1880 to 1909:—

Year.	Total ovens.	Tons shipped.	Average price.	Gross revenue.
1880.....	7,211	2,205,946	\$1.79	\$ 3,948,643
1885.....	10,471	3,096,012	1.22	3,777,134
1890.....	16,020	6,464,156	1.94	12,537,370
1895.....	17,947	8,244,438	1.23	10,140,658
1900.....	20,954	10,166,234	2.70	27,448,832
1901.....	21,575	12,609,949	1.95	24,589,400
1902.....	26,329	14,138,540	2.37	33,508,714
1903.....	28,092	13,345,230	3.00	40,035,906
1904.....	29,119	12,427,468	1.75	21,748,069
1905.....	30,842	17,896,526	2.26	40,446,149
1906.....	34,059	19,999,326	2.75	54,998,146
1907.....	35,697	19,029,058	2.90	55,184,268
1908.....	37,842	10,700,022	1.80	19,260,040
1909.....	39,158	17,785,832	2.00	35,571,664

THE STANDARD ANTHRACITE PRICES.

At Port Richmond.		Broken.	Egg.	Stove.	Chestnut.
Free white ash.....		\$4.50	\$4.75	\$4.75	\$4.75
Hard white ash.....		4.60	4.75	4.75	4.75
Shamokin.....		....	5.00	5.00	5.00
Schuylkill red ash.....		....	5.25	5.25	5.25
Lorberry.....		....	5.25	5.25	5.25
Lykens Valley.....		5.50	5.75	5.75	5.75
At Port Liberty.		Broken.	Egg.	Stove.	Chestnut.
Free white ash.....		\$4.75	\$5.00	\$5.00	\$5.00
Hard white ash.....		4.85	5.00	5.00	5.00
Shamokin.....		....	5.25	5.25	5.25
Schuylkill red ash.....		....	5.50	5.50	5.50
Lorberry.....		....	5.50	5.50	5.50
Lykens Valley.....		5.75	6.00	6.00	6.00

Above were the scheduled prices from which discounts were had, starting with April 1st, of 50 cents a ton, and lessening by 10 cents a month until September, when the full list came into force once more.

BUFFALO, ROCHESTER & PITTSBURGH RY. TONNAGES.

Mineral.	1904.	1905.	1906.	1907.	1908.	1909.
Anthracite coal..	77,190	91,962	73,413	104,976	82,189	68,343
Bituminous coal...	4,907,543	6,234,260	5,204,437	6,184,159	5,849,240	5,186,043
Coke.....	671,750	700,259	706,867	620,154	476,886	301,336
Iron Ore.....	251,294	340,015	310,505	458,561	383,273	466,956
Other products of mines.....	492,519	582,529	261,490	315,971	471,103	281,285

Years end June 30th; tons of 2,000 pounds.

CONNELLSVILLE COKE PRODUCTION, 1909.

The Connellsville coke trade of 1909 reflected the country's industrial uplift, just as the trade of 1908 told the dismal tale of its depression, says the 'Courier.' In the latter year, the coke trade fell in volume to half the capacity of the regions and the prices went below \$2 per ton where they had not been since the beginning of the era of general prosperity which followed the inauguration of the McKinley administration.

The first half of 1909 showed little gain over the heart-breaking record of the previous six months. During this period prices went to low levels. Sales of coke that went as low as \$1.35 per ton were recorded, though the general base line was in the neighborhood of \$1.50. There was a slight improvement in June, but the boom did not come on until the last quarter, when a satisfactory settlement of the tariff question was assured and industrial activity was resumed. During the last three months of the year the production rose above 1,800,000 tons per month, or within about 6 per cent. of the productive capacity. Prices rose correspondingly and the year closed with coke close to \$3 per ton.

The weekly estimates of production compiled and published by the 'Courier' show a production during the year of 17,565,575 tons. The following tabulation shows the production for each quarter of the year from each of the Connellsville and Lower Connellsville regions with the aggregates:

Quarter.	Conn-lls'e.	Lower Conn.	Total.
1st	2,055,656	1,325,414	3,381,070
2nd	2,135,444	1,315,795	3,451,239
3rd	3,298,514	1,768,505	5,067,019
4th	3,498,962	2,167,285	5,666,247
Total	10,988,576	6,576,999	17,565,575

These figures are merely estimates, but they are for all practical purposes correct as is indicated by the actual tonnages shipped during the year. These figures obtained from official sources show that the actual output of the year 1909 was 17,785,832. There was very little stock coke on the yards at the beginning of 1909 and very little at its close, so that the record of production and output should be close together. We find a difference of about 220,000 tons or 1¼ per cent. The following table shows the actual number of tons shipped from each region and their destinations:

Point of shipment.	Original Conn.	Lower Conn.	Total.
Pittsburgh	5,392,619	756,955	6,149,574
West	5,478,258	4,618,611	10,096,869
East	646,096	893,293	1,539,389
Total	11,516,973	6,268,859	17,785,832

Among the features of operation during the year were intermittent shortages of labor, cars and water. During the first four months there was a complaint in the region that the operators hadn't enough men to man their ovens. Foreign agencies immediately became active. Hurry calls were sent to Hungary and Italy to former coke workers who had hied homeward the previous year, to come back and go to work again. The call was not promptly responded to, and it was not until June that the influx began in earnest, but it fortunately came in sufficient volume to meet the demands of the boom which set in in September and within a few months put practically every oven in the region in blast.

The car supply of the region was beyond serious reproach until the boom came in the fall. As early as June, the Pennsylvania RR. began introducing big 40-ton steel coke cars into the region, and the other lines showed signs of meeting all demands upon them. But none of the railroads seemed to have anticipated the swiftness and size of the coming resumption, and in November complaints of car shortages were heard, and these grew worse in December, but they were sporadic rather than general. As a matter of fact the railroads have the situation fairly well in hand.

The water famine began early in the summer, was bad in July and apparently worse in November and December. In the summer a good rainfall helped to tide over the dry season, but the lack of rain in the fall brought a recurrence of the trouble. Just at the period when plants were shutting down there came another season of rain and snow which filled the reservoirs anew.

In spite of the unpromising outlook new oven construction went steadily on during the year, and was greatly hastened in the fall by the growing demand for coke. A number of large plants begun during the past three years were practically completed, while large operations of an entirely new character were begun.

PHILADELPHIA & READING C. & I. CO. TONNAGES.

Below are the statements of the Philadelphia & Reading C. & I. Co. covering the fiscal years ended June 30th, as specified:—

Mined by	Year.	From lands			Total.
		Owned.	Controlled.	Other.	
Company	1906	7,294,299	349,822	1,488,231	9,132,353
Company	1907	7,974,379	386,418	1,673,915	10,034,713
Company	1908	8,116,405	474,830	1,627,156	10,218,392
Company	1909	7,447,109	378,896	1,457,954	9,283,961
Decrease 1909 compared with 1908.....		669,295	95,933	169,201	934,431
Tenants	1906	1,334,223	192,497	.....	1,526,699
Tenants	1907	1,434,087	186,300	.....	1,620,387
Tenants	1908	1,539,667	156,094	.....	1,695,761
Tenants	1909	1,309,279	180,065	.....	1,489,345
Decrease 1909 compared with 1908.....		230,387	*23,971	.....	206,416
Company and tenants..	1906	8,628,523	542,298	1,488,231	10,659,053
Company and tenants	1907	9,408,466	572,719	1,673,915	11,655,100
Company and tenants	1908	9,656,073	630,924	1,627,156	11,914,154
Company and tenants..	1909	8,756,389	558,962	1,457,954	10,773,306
Decrease 1909 compared with 1909.....		899,683	71,962	169,201	1,140,847

*Increase.

ESSENTIALS OF BLAST FURNACE COKE.

Coke for blast furnace use should be of especial purity (low sulphur, low phosphorus and moderate ash). A blast furnace using such a coke can decrease the amount of limestone and increase the output of iron.

An analysis of extra good coke shows: Fixed carbon, 87.00 to 89.00; ash, 9.50 to 12.00; volatile, 1.00 to 1.50; sulphur, .60 to .90; phosphorus, .009 to .013.

THE ELIMINATION OF THE SMALL DEALER.

When the coal business of the United States gets consolidated into a condition similar to the oil business and each town large enough to warrant a central station is supplied in the way that the Standard now caters to the demands locally, we shall see a condition in fuel very much like that which already exists in Buffalo. There the company trestles, from which the retailers obtain their supplies, enable any one with a team and an office to be in the coal trade, very much as the grocer gets his oil, as he wants it and when he wants it, in large or small quantities. In prominent cities like New York and Chicago we find that amalgamation of firms has been feasible and profitable.

In most small cities and villages the coal man has perforce to have a side line or two to keep him engaged for the whole 12 months, and this sharer of the fuel trade will be the last to lead as a factor, for he is only part of the supplying machinery and can scarcely map out a prominent individual course for himself.

Looking forward, we see in all large centers a gas plant that will furnish the householder with heat for cooking, a steam company that provides comfort for cold weather, an electric works that sends the "juice" around for power, and perhaps even a cold storage factory that will pump zero weather in pipes for hot spells. So there are only the country districts to fall back on for the ordinary old-time retailer of coal, as timber is getting scarce and wood for fuel costs too much to prepare now.

CAUSES FOR SHRINKAGE IN COAL WEIGHTS.

The causes for shrinkage of coal weights are as follows:

1. The evaporation of moisture or water in the coal.
2. The loss of volatile gases, which, combining with the oxygen in the atmosphere, cause a shrinkage in weight and loss of heat units.

By chemistry, high grade bituminous coal is composed of four per cent. of moisture, 35 per cent. of volatile matter, 55 per cent. of fixed carbon and six per cent. of ash. This means that every ton of coal contains 80 pounds of water, 700 pounds of gassy matter, 1,100 pounds of carbon and 120 pounds of earthy matter or ash.

When coal is freshly mined it usually absorbs more or less moisture from the air and water in the mine. Upon exposure to the atmosphere, and more especially during transportation, evaporation takes place, depending upon the climatic and weather conditions. This fact is rather generally known, but few coal consumers realize that in addition to the evaporation of the water the oxidation of the more volatile gases in the coal takes place and results in a much larger decrease in weight than is due to the evaporation of water.

Dr. J. A. Holmes, of the Geological Survey, takes the position that coal is selling too cheaply. At a lecture delivered at Scranton, Pa., at a miners' institute meeting, Dr. Holmes said that a higher price for coal is essential if the present death rate in the mines of the United States is to be reduced to a point where a favorable comparison can be made with conditions in other countries. The operators' margin of profit is too small now, he said, to permit them to take the necessary precautions against accidents.

IMPORTS AND EXPORTS OF COAL.

Below is a statement of the business done in the shipments of coal from and to the United States, in the fiscal years ending June 30th:—

Years.	(All gross tons.)	Exports		Imports.
		Anthracite.	Bituminous.	Bituminous.
1901.....	1,912,080	5,763,469	1,928,198	
1902.....	1,570,490	5,400,694	1,941,120	
1903.....	1,388,653	5,210,222	3,610,225	
1904.....	2,048,154	6,434,713	1,946,323	
1905.....	2,312,982	6,707,788	1,522,151	
1906.....	1,970,401	7,155,592	1,820,687	
1907.....	2,481,920	8,812,332	1,689,869	
1908.....	2,837,778	9,944,957	1,981,467	
1909.....	2,869,762	9,018,867	1,227,858	

The following tabulation shows the imports, in gross tons, in the calendar years named:—

Imports.	1906.	1906.	1907.	1908.	1909.
Anthracite (free)	34,262	32,357	9,896	16,483	4,709
Bituminous (dutiable)	1,618,581	1,712,150	2,116,122	1,489,816	1,257,629
United Kingdom	60,338	74,414	32,934	20,506	17,225
British North America.....	1,331,292	1,427,731	1,398,194	1,107,737	1,043,419
Japan	41,956	11,996	123,918	31,792	14,344
Other Asia and Oceanica.....	184,226	191,758	552,918	327,441	182,271
Other countries	134	6,251	8,356	340	370
Total imports	1,653,743	1,744,507	2,126,018	1,504,299	1,262,338

Details of exports in the past two years are given below:—

	Anthracite		Bituminous	
	1906	1909	1906	1909
France			20,335	62,071
Germany			1,038	68
Italy			189,607	156,920
Other Europe	3,672	1,208	19,929	34,842
British North America.....	2,710,308	2,802,361	6,542,635	6,980,213
Mexico	2,103	606	691,996	613,704
Cuba	24,946	28,956	665,921	694,638
Other West Indies.....	8,192	7,632	366,507	370,552
Other countries	3,137	1,951	602,851	780,835
Total	2,752,358	2,842,714	9,100,819	9,693,843
Coke exported in 1908, 622,228 tons; in 1909, 895,461.				

LEHIGH & WILKES-BARRE COAL CO'S TONNAGE.

The tonnage shipped in fiscal years ending June 30th, from lands owned and controlled by the company, was as follows, in tons:—

Detail.	1906.	1906.	1907.	1908.	1909.
Company, from fee lands... 2,545,289	2,565,685	3,004,043	3,085,808	3,082,715	
Company, tenants' fee lands.. 1,183,489	937,273	1,022,534	1,129,875	980,921	
Company, from leased lands.. 892,738	885,165	910,206	1,097,940	909,474	
Tenants, from leased lands... 177,478	201,444	224,327	203,625	156,968	
Company, from washeries... 97,399	75,041	51,442	43,825	101,466	
Tenants, from washeries.... 262,513	219,172	178,368	161,327	213,808	
Grand total.....	5,159,109	4,883,780	5,390,920	5,722,400	5,445,352

COAL STORED BY THE DODGE SYSTEM.

The storing of anthracite coal by the Dodge system is an important feature of the trade. The machinery under construction, installed and in use to date provides for the storage of 4,870,000 tons as follows:

- Philadelphia & Reading C. & I. Co.—Abrams, Pa., 480,000.
 Philadelphia & Reading Ry. Co.—Port Richmond, Pa., 180,000.
 Pennsylvania RR. Co.—South Amboy, N. J., (1) 100,000; (2) 90,000.
 Delaware & Hudson Co.—Carbondale, Pa., 150,000; Delanson, N. Y., 120,000.
 Central RR. Co. of New Jersey.—Hampton Junction, N. J., (1) 180,000; (2) 300,000; Salem, Mass., 80,000.
 Lehigh Valley Coal Co.—South Plainfield, N. J., 310,000; West Superior, Wis., 100,000; Ransom, Pa., 400,000; Black Creek Junction, Pa., 225,000; Wende, N. Y., 100,000.
 Erie RR. Co.—Buffalo, N. Y., 105,000; Rochelle Park, N. J., (1) 150,000; (2) 50,000; (3) 50,000; Hammond, Ind., 60,000.
 Susquehanna Coal Co.—McClellan, Pa., (1) 210,000; (2) 170,000; (3) 100,000; Old Bridge, N. J., 210,000.
 Lehigh Coal & Navigation Co.—Hauto, Pa., 240,000.
 Pennsylvania Coal Co.—Newburgh, N. Y., 80,000.
 Delaware, Lackawanna & Western RR. Co.—Scranton, Pa., 100,000; Dover, N. J., 100,000.
 New York, Ontario & Western Ry. Co.—Middletown, N. Y., (1) 120,000; (2) 60,000.
 North Western Fuel Co., West Superior, Wis., 150,000.
 New York Edison Co., Shady Side, N. J., 100,000.

This is a useful compilation to have on hand in times of strikes and other difficulties, when widely varying unofficial figures find their way into print. The amount of company coal stored by other systems (or dumped without handling appliances) is certainly never greater than the amount in the conical piles of the Dodge system.

GEORGIA.

Coal is mined on a commercial scale in but two counties in Georgia—Dade and Walker. The beds from which it is taken are extensions of the Warrior field in Alabama. The Dade County mines are in the northeast end of the Sand Mountain ridge, and the Walker County openings are in the Lookout Mountain seam. This small portion of the Appalachian field (the smallest contained in any State) occupies an area of about 200 square miles.

The following table exhibits the annual product, in short tons:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1895.....	260,998	1900.....	315,557	1905.....	351,991
1896.....	238,546	1901.....	354,825	1906.....	332,107
1897.....	195,869	1902.....	414,083	1907.....	362,401
1898.....	255,682	1903.....	416,951	1908.....	264,822
1899.....	233,111	1904.....	383,191	1909.....	300,000

According to the estimates of M. R. Campbell, of the United States Geological Survey, the total original coal supply of Georgia was 933,000,000 tons, from which there had been mined to the close of 1908, 8,388,518 short tons, representing (including loss in mining) an exhaustion of about 12,500,000 tons. This would leave still in the ground a total of 920,500,000 tons, of which from 600,000,000 to 650,000,000 tons would probably be considered as recoverable.

RECEIPTS OF DOMESTIC COAL AT BOSTON.

Following is a table of receipts of both anthracite and bituminous coal in gross tons at Boston, Mass., for the period January 1, 1907, to December 31, 1909, and by it will be seen at a glance the fluctuations in receipts by months. We have omitted the receipts of foreign coal, which are small.

Month.	Anthracite			Bituminous		
	1907.	1908.	1909.	1907.	1908.	1909.
January	172,843	141,579	99,855	208,885	244,106	226,444
February	100,148	100,176	93,305	159,688	249,487	222,888
March	203,585	148,149	169,681	284,491	330,497	339,301
April	185,621	150,276	193,560	260,055	214,936	279,060
May	193,665	178,638	175,497	317,591	222,581	282,398
June	171,810	163,240	144,401	285,067	261,363	276,995
July	209,736	143,221	107,573	276,653	315,911	306,045
August	163,864	123,597	119,946	395,634	284,126	369,931
September	133,727	125,268	130,364	258,276	302,419	279,158
October	170,526	189,979	181,125	239,949	227,305	380,380
November	169,119	155,677	160,782	312,292	319,327	251,452
December	178,674	156,601	130,870	287,403	330,961	280,359
Totals	2,053,328	1,776,401	1,706,659	3,184,964	3,302,929	3,495,011

PENNSYLVANIA RR. COAL SHIPMENTS.

Statement of coal and coke originating on Pennsylvania RR. Co's lines east of Pittsburgh and Erie, for the year ending December 31, 1909, and for previous years:—

	1906.	1907.	1908.	1909.
Anthracite coal, net tons.....	4,580,018	5,691,983	11,294,598	11,190,176
Bituminous coal, net tons.....	32,398,081	39,718,356	35,797,173	38,882,058
Coke, net tons.....	12,732,989	13,047,593	7,463,698	12,028,791
Total	49,711,088	58,457,932	54,555,267	62,101,025

The statements now furnished by the company differ in basis of compilation from the former statements in that they show all coal carried over the lines of the Pennsylvania RR., instead of only the originating tonnage heretofore shown in the tabulations of coal and coke shipments. The change in form necessarily enlarges very much the tonnage figures for 1908 and 1909, and this circumstance should be borne in mind in making comparisons between the tonnage of the past two years and the tonnage of previous years.

SHIPMENTS OF ANTHRACITE ACCORDING TO SIZES.

Size.	1904.	1905.	1906.	1907.	1908.
Lump	1,447,549	1,609,887	1,420,311	1,317,068	680,650
Broken	3,979,062	4,238,069	3,723,515	4,372,717	3,659,040
Egg	7,600,002	7,562,414	6,988,770	8,427,645	7,850,663
Stove	11,282,077	11,765,449	10,061,734	12,209,863	12,604,492
Chestnut	11,327,971	12,249,338	10,699,774	13,005,562	13,524,480
Pea	8,057,268	8,419,097	7,400,203	8,756,674	8,208,424
Buckwheat No. 1.....	7,894,145	8,979,332	8,320,522	9,842,323	9,477,413
Smaller	5,904,448	6,586,614	7,083,746	9,177,541	8,659,852
Total, gross tons.....	57,492,522	61,410,201	55,698,595	67,109,393	64,665,014

SOME AVERAGE RESULTS ON COAL SALES.

Anthracite and bituminous prices for seven years have been, at mines, by the figures furnished to the United States Geological Survey:—

	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Bituminous	\$1.12	\$1.24	\$1.10	\$1.06	\$1.11	\$1.14	\$1.12
Anthracite	1.84	2.04	1.90	1.83	1.85	1.91	1.90

These figures are based upon the total tonnage shipped of grades, sizes and qualities, with the due proportion of each.

These figures have the accuracy guaranteed by Governmental investigation, and yet it must be recognized that averaging up the entire output in such a way embraces so many dissimilar factors that an application of the average must be made only with caution. For instance, the anthracite figures include the price realized on all sizes of coal, even down to culm sold (perhaps to neighboring brickmakers) at a merely nominal price. And the bituminous figures not only include the high prices realized at certain remote places where cost of mining is high, but also include the tonnage supplied on large contracts by concerns having a more or less definite interest in the affairs of their customers, such as coal shipped from mines owned by large industrial companies or coal shipped from railroad mines for railroad use. The figures of the ordinary commercial transactions of the coal markets would undoubtedly show a higher range of prices, and probably more fluctuations from year to year in the case of the bituminous output.

THE COST OF ANTHRACITE WILL INCREASE.

Optimists among coal consumers, and especially those who burn the products of the narrow and narrowing Pennsylvania anthracite fields, may look in vain for lower ranges of prices as the months and the years roll by. Almost all of the causes assigned by the operators for the increased cost of coal mining since 1903 are permanent conditions—not temporary ones, like the fluctuating prices of materials; and the effect of them must be steady advances in the cost of digging and preparing coal for shipment.

No hitherto undiscovered deposits of anthracite coal are being brought to light, to begin with; Nature has presumably ceased to create from her own "raw materials" anywhere in "the bowels of the earth;" we must take what the existing fields yield or go without our anthracite. It is true that the richer and more-easily-worked seams are being steadily exhausted; that bringing the deposits from deeper and deeper levels year by year grows steadily more expensive; and that these changing conditions of mining, as well as the enactment of "labor laws," regularly compel the provision of safety devices more numerous, more elaborate and more costly.

In the 1908 edition of this work an item appeared relative to the deep coal mine at Atchison, Kan., said to be the deepest soft coal mine in the United States. The seam worked was 1,112½ feet from the surface. We understand that experience has proven that it was not profitable to mine the coal on account of the excessive amount of water to be handled, although the quality of the coal is fair. For the time being the mine is abandoned, and so the operation can no longer remain on record as the deepest soft coal mine in the United States.

PERCENTAGES OF ANTHRACITE PRODUCTION.

It is about fourteen years ago that the percentage of each of the big carriers to the total output was figured out by the statisticians. That percentage is often referred to as an "allotment," and it is a peculiar fact as the reader is aware that although the production has doubled within the period referred to, the ability to "hold its own" should be recorded of each concern. Thus it is that we have the following comparative statement of percentages:—

	Allot.	1905.	1906.	1907.	1908.	1909.
Philadelphia & Reading.	20.50	20.48	20.21	20.89	19.45	19.24
Lehigh Valley	15.65	16.40	17.90	17.18	16.66	16.61
Jersey Central	11.70	13.00	12.54	12.99	13.14	12.81
Del., Lack. & Western...	13.35	15.56	16.52	15.25	15.60	15.38
Delaware & Hudson	9.60	9.19	9.60	9.78	9.99	9.90
Pennsylvania RR.	11.40	7.96	8.72	8.72	9.31	9.63
Erie	11.20	10.14	10.12	10.66	11.52	12.04
Ontario & Western	3.10	4.65	4.39	4.01	4.33	4.39

As the years go by there are but slight changes in percentage, though ten per cent. of sixty millions means much more than ten per cent. of the 1896 output did.

COAL TRAFFIC VIA THE POUGHKEEPSIE BRIDGE.

The tonnage of coal and coke moving over the Poughkeepsie Bridge, for the years named below will show to what extent the bridge is being used to get coal into the New England market, and the growth of the traffic over this route for the past few years.

1902.....	126,943	1904.....	528,814	1906.....	768,812	1908.....	969,655
1903.....	258,471	1905.....	519,145	1907.....	913,573	1909.....	1,806,547

Tonnages are for fiscal years ending June 30th.

The increase for the last fiscal year, over 1908, is very notable, amounting to 836,892 tons.

With the reconstruction of the structure in 1907-8 its usefulness has been considerably increased and it is at last achieving the object for which it was planned.

PRICES OF CONNELLSVILLE COKE, 1909.

The average price of all coke sold is closely figured at \$2.00 The monthly quotations were as follows, the range being for contracts and spot deliveries:—

Month.	Furnace.	Foundry.	Month.	Furnace.	Foundry.
January	\$1.70	\$2.10	July	1.55	1.85
February	1.65	2.00	August	1.75	2.00
March	1.55	2.00	September	2.30	2.50
April	1.43	1.90	October	2.80	2.75
May	1.45	1.85	November	2.85	3.00
June	1.50	1.85	December	2.85	3.10

It is stated on good authority that the largest retail concern in New York handled 1,800,000 tons last year; the second largest 800,000 tons.

DETERMINING HEATING POWER OF FUEL.

COMPILED AND REVISED BY A. BEMENT, M. E.

The measurement of heat by means of a calorimeter requires considerable skill and the use of a rather expensive instrument, therefore if some method could be adopted which would eliminate the necessity for a calorimeter determination, it would simplify the matter to an important extent.

Coal may be considered as a fuel made up of three groups of matter, first and most important that of coal itself. The other two groups are the impurities, ash and moisture; thus if a small portion of the coal is dried, its weight before and after shows the amount of moisture contained, and if a weighed sample is burned, the weight of the resulting ash may be compared with the original and the percentage of this ash readily ascertained. Thus the sum of the ash and moisture subtracted from the total weight, shows how much of the fuel is pure coal. If pure coal was of the same composition it would consequently be uniform in heat producing power, then the heat of all coal could be used as a constant, and its heating power per pound reduced an amount equal to the displacement due to the presence of ash and moisture. The heating power of coal, however, varies from semi-bituminous, as an example of the best, to lignite, which is the poorest.

Mr. Bement presents a table giving the heating power per pound of pure coal from anthracite to lignite. The term pure coal relates to fuel minus ash and moisture, but often erroneously referred to as combustible. This table which follows, is approximately accurate, and inasmuch as it has appeared in published form, may be offered in this connection.

	Heating value per pound pure coal in B. T. U.	
	Range.	Average.
Anthracite	14,400 to 14,800	14,600
Semi-Anthracite	14,600 " 15,200	14,900
Semi-Bituminous	15,500 " 16,000	15,750
Bituminous, eastern	14,400 " 15,200	14,800
Bituminous, western	13,800 " 14,800	14,300
Lignite	11,000 " 13,800	12,400

The range from highest to lowest in British Thermal Units, or its abbreviations, B. T. U., for each character of coal, is shown by the first two columns and the average heating power in the other. One may readily judge by inspection to which classification the fuel to be tested belongs, or by the locality from which it comes. Thus to approximately determine the B. T. U., value, the average heating power of pure coal under consideration should be reduced an amount equal to the ash and moisture present. For example, if anthracite is found by test to have two per cent. moisture and 12 per cent. ash, the total is 14, which, subtracted from 100 leaves 86; thus $14,700 \times 0.86 = 12,642$, as the B. T. U. in one pound of the commercial coal.

COAL TRADE OF THE NEW YORK CANALS.

The quantity carried on the State canals, in both directions, east and west, is stated by the Superintendent of Public Works to have been as below:—

Tons, 2,000 lbs.	1904.	1905.	1906.	1907.	1908.	1909.
Anthracite	475,397	429,091	358,158	431,014	358,575	300,610
Bituminous	231,872	217,349	187,783	162,042	140,212	170,675

BOSTON RATE AN IMPORTANT FACTOR.

There is a well-established proportion of difference in vessel rates to the coal receiving ports of the New England States, and taking Hampton Roads and Philadelphia as starting points, the rates would as a general thing be quoted on the following basis:

Eastport, from 10 to 20 cents above the Boston rate. Most of the tonnage to this port goes in small vessels from New York.

Newburyport, usually five to ten cents over the Boston rate from Philadelphia. The bulk of the shipments to this place, however, goes in Philadelphia & Reading barges and in many cases the rate is the same as to Boston.

Bangor and Bath take anywhere from the Boston rate to 15 cents over, but, as in the case of Newburyport, most of the tonnage goes in company barges, on which the regular Boston rate usually applies.

Towing charges make the rate to Portsmouth five cents above the Boston basis.

Searsport usually takes the Boston rate, but in time of shortage of transportation might command a trifle more.

Augusta, Gardiner, Bucksport, Wareham, Hyannis, Fairhaven and Belfast are all light-draft ports, taking schooners from 250 to 450 tons. In many cases towing up the rivers is necessary, which causes additional expense. Calais can take larger vessels, but cargoes to this point are subject to a high towing charge.

From New York harbor the proportion of difference in distance to be traversed is somewhat larger and rates may vary to a greater extent; but on the long hauls from Norfolk, Newport News and Baltimore, and to nearly the same extent from Philadelphia, the difference in mileage to one place and another is not so great and the above-mentioned basis of difference will be found to prevail as a general thing.

DISTRIBUTION OF PENNSYLVANIA SOFT COAL PRODUCTION.

The detailed statements embraced in the annual review of the United States Geological Survey show the following distribution, as to use, of the bituminous coal mined during the years 1905, 1906, 1907 and 1908:—

Distribution.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.
Shipped by rail.....	86,018,041	93,904,804	110,009,673	91,360,007
Sold at mines.....	2,236,728	1,791,889	1,941,132	1,801,292
Used in coke making.....	27,926,282	31,026,194	35,152,189	21,200,991
Used in operating collieries..	2,232,586	2,570,319	3,040,183	2,817,237
Total	118,413,637	129,293,206	150,143,177	117,179,527

COAL SHIPMENTS OF THE KANAWHA RIVER.

Shipments by water in the calendar years from collieries below the Kanawha Falls are stated by Resident Engineer in charge of United States navigation works to have been as follows:—

Year.	Bushels.	Year.	Bushels.	Year.	Bushels.
1898.....	27,229,000	1902.....	24,446,800	1906.....	29,366,800
1899.....	23,500,000	1903.....	33,348,000	1907.....	41,213,700
1900.....	30,837,000	1904.....	27,367,500	1908.....	23,884,600
1901.....	33,745,300	1905.....	36,517,000	1909.....	26,642,000

BY-PRODUCT COKE IN THE UNITED STATES.

The production of by-product coke in the United States for the year 1908 was 4,201,226 net tons. This is a decrease of 1,406,673 tons compared with 1907, for which year output was given as 5,607,899 net tons by the U. S. Geological Survey. This represents a loss of 25.08 per cent. The total coke production of the country, by-product and bee-hive ovens, was 26,033,518 net tons, for the year 1908, as given by the same authority.

The gain of the by-product oven is shown in another way. In 1907 it produced 13.7 per cent. of the total coke and in 1908 it produced 16.14 per cent. of the total. And this gain has been registered by the increasing efficiency and more continuous operation of the by-product oven, rather than by additions to the number in existence.

When we consider the vast waste of valuable by-products that now goes on in the coke industry, and the pressure that is now being brought to bear, both by the Government and by public opinion, looking towards the more complete and economical utilization of our national resources, we cannot escape the conclusion that the use of the by-product coke oven in this country is, as yet, in its infancy.

OUR PAST AND FUTURE COAL PRODUCTION.

It is well to emphasize the fact that the uncertainty in predicting for the future rests upon many unknown factors, chief among which is the future rate of increase in consumption. During the last 50 years the output for each decade has been nearly double that of the preceding one which means that the production each ten years has been equal to the total production up to the beginning of that decade, and if this rate of increase were to continue uninterruptedly we might look for an exhaustion of the coal supply early in the 21st century. Against this, however, must be set a number of counteracting influences. Among these may be mentioned the improvements which must be brought about in (1) the methods of mining, assuring a greater percentage of recovery from the mines and a larger proportion of usable fuel and less waste and inferior coal; (2) processes for using economically the slack or low-grade coal; (3) more efficient methods of combustion which will increase output of energy per unit of fuel consumed; (4) the utilization of other forces of nature which will to a greater or less extent diminish the drain upon our coal supplies. Much is already being done and more will be done in the development of better methods in the mining, preparation, and utilization of coal.

LINE TRADE PRICES FOR ANTHRACITE.

The following are prices, free on board cars at mines:

Sizes.	Mahanoy	Schuylkill White ash.	Shamokin	Schuylkill Red ash.	Lykens Valley Red ash.
Lump	\$3.50	\$3.50	....	....	....
Broken	3.50	3.50	....	\$3.75	\$4.10
Egg	3.75	3.75	\$3.75	4.00	4.35
Stove	3.75	3.75	3.75	4.00	4.35
Chestnut	3.75	3.75	3.75	4.00	4.35
Pea	2.00	2.00	2.00	2.10	2.50
Buckwheat	1.50	1.50	1.50	1.60	2.35

SHIPMENTS OF ANTHRACITE COAL, BY MONTHS.

The shipments of anthracite coal by months for five years have been as follows:—

Month.	1905.	1906.	1907.	1908.	1909.
January	4,408,578	5,458,084	5,249,946	5,618,339	5,183,345
February	3,922,601	4,712,099	4,563,720	4,503,756	4,576,004
March	5,258,567	5,797,167	5,235,814	4,766,158	6,332,474
April	5,278,041	488,203	5,916,583	5,987,221	5,891,176
May	6,005,158	3,254,230	5,994,272	6,088,116	5,063,873
June	5,844,052	5,676,018	5,976,906	5,704,852	4,904,858
July	4,546,743	4,981,448	5,669,024	4,541,506	4,020,765
August	5,041,838	5,400,511	5,795,347	4,599,093	4,198,273
September	5,082,232	4,527,886	5,512,717	5,211,047	4,416,130
October	5,205,694	5,384,768	6,108,065	5,997,497	5,579,759
November	5,421,584	5,182,153	5,743,522	5,839,491	6,027,800
December	5,395,113	4,836,028	5,343,477	5,827,938	5,775,438
Totals	61,410,201	55,698,595	67,109,393	64,665,014	61,969,885

The record of large monthly tonnages runs as follows:—

Month and year.	Long tons.	Month and year.	Long tons.	Month and year.	Long tons.
Jan., 1903....	5,964,950	May, 1908....	6,088,116	Sept., 1907....	5,512,717
Feb., 1903....	5,070,608	June, 1907....	5,976,906	Oct., 1907....	6,108,065
March, 1909....	6,332,474	July, 1907....	5,669,024	Nov., 1909....	6,027,800
April, 1908....	5,987,221		5,795,347	Dec., 1908....	5,827,938

ASCERTAINING TEMPERATURE OF COAL PILES.

The old method of determining the temperature of a coal pile by driving pipes and hanging thermometers in them has been greatly improved by means of a special coal auger designed and used by a Boston laboratory. It is similar in form to that used in the mines, but is provided with a means of inserting a small maximum thermometer near the point. Extensions, four feet in length (for convenience in carrying), may be attached to the auger so that the thermometer can be readily inserted into any depth in a pile. The point of the auger can be driven 20 feet in three to five minutes. About ten minutes is required for the thermometer to attain the temperature of the surrounding coal. Temperatures obtained in this manner are much more accurate than those obtained by hanging a thermometer down a pipe where there is more or less circulation of air, making it impossible to locate the hottest spot. Temperatures obtained by means of the auger have been found to be 40 degrees Fahrenheit higher than by the pipe method.

MACHINE AND PICK MINING IN PENNSYLVANIA.

During the year 1908, there were 514 bituminous mines in Pennsylvania in which machines were used for mining, the total number of machines in use being 4,958. Of this number 1,695 were operated by electricity and 3,263 were operated by compressed air. The production of bituminous coal by machines in the State amounted to 51,387,803 tons and the production by pick mining amounted to 63,549,572 tons. It will be seen that the production by pick mining was still 12,161,769 tons more than was produced by machines during the year.

DRAWBACKS OF B. T. U. SYSTEM.

A question was recently asked by a retail dealer as to the disadvantages of the B. T. U. system, as he was seeking reasons that might be quoted to a buyer for refraining from issuing specifications on that basis. But the basis is one that so emphatically benefits the buyer, at the expense of the seller, that it is not easy to quote many theoretical reasons why it should not be adopted. Theory differs from practice, however, and in the practical working out of the system it is found that many of the principal coal concerns will not bother with the uncertainties involved in analyses made by a third party in the interests of one's debtor, for there is in that case not only the matter of selling the coal to be considered, but the price is an open question until final settlement has been made.

In consideration of the difference between theory and practice, too much stress cannot be laid upon the matter of sampling. In theory it may be a simple matter to get a reasonably fair sample, but in practice it is found that sampling often leads to serious controversy, simply because the quantity selected for analysis was not large enough. And in controversies of this sort it is, of course, but natural for each of the contending parties to select a sample most favorable for his own cause.

A thoroughly scientific sampling involves the selection of a large quantity of coal—a ton or more—from different parts of a car or cargo and the successive quartering and mixing of this, which will finally reduce the amount to a small enough quantity for the actual laboratory work. But of course such handling of tonnage means expense, which is not likely to be undertaken when the idea is to use the B. T. U. system as a means of economy, and in the selection of a small sample some one is apt to get a poor deal.

For these and several other reasons the buyer on the B. T. U. basis is apt to be limited in his purchase to the smaller and more irresponsible concerns. The matter of dealing with reliable parties is not to be lightly estimated. Every one can ship coal when conditions of transportation are favorable, but who is the man who can most likely get good quality fuel through in good time when transportation is impeded and there is a clamor for coal? Is it the man who does a fluctuating business, who is able to pick up some good tonnage and some poor stuff to fill his requirements with, or the large and substantial company which makes a practice of shipping good coal from its own mines the year round?

Such houses know what coal costs and what it is worth. They know, too, where they can place their tonnage without submitting to unjust conditions. The minor concerns in the trade are not so fortunately situated, and at the same time some of them feel that in endeavoring to build up their trade they can afford to take a chance with any and all contracts. If their coal goes through, they are all right; but should difficulties arise and should it be sought to invoke a penalty, can they be proceeded against with good chance of recovery? Is it not true that some of the small agencies in the interior markets might be inclined to fold their tents over night? In that event, would not the seeker after damages have as much chance of recovery if he should sue the Confederate Government?

There is, we think it will be agreed, a satisfaction in dealing with responsible people, and the value of such a trade connection quite offsets the possibility of a slight variation in thermal units, a change one way or the other due to the natural constituents of the fuel furnished, and in any event quite beyond the manipulation of the shipper thereof.

A COMPARISON OF HEAT UNITS AND PRICES.

With the B. T. U. system of coal contracts coming into use, a convenient schedule of values will doubtless be found interesting by many of our readers. We present below a tabulation that will enable one to determine at a glance the relative fuel value of one coal as compared with another.

The first schedule shows the value of coal containing from 12,000 to 13,000 British thermal units, selling at prices from \$1.50 to \$2.00 for the higher number of "units." This, of course, applies only to the poorer grades of coal and at places near the mines. The second schedule shows the values of coals containing from 13,000 to 14,000 B. T. U. throughout the same range of prices for 13,000 "units." It applies to fuel of a better quality, but only at places near to point of production. The third and fourth tabulations will be found of more general application, embracing as they do coal having from 13,000 to 14,000 B. T. U. and at prices ranging between \$2.00 to \$4.00 per ton. The fifth schedule is applicable only to the highest grades of coal, ranging as it does from 14,000 to 15,000 B. T. U.

Collectively there is a wide range of prices and fuel values shown, and we feel sure that the readers of this volume will find the information a very convenient means of deciding promptly many questions appertaining to fuel values.

Relative coal values, based on 12,000 to 13,000 B. T. U., when at certain prices for 13,000:—

13,000.....	\$2.00	\$1.95	\$1.90	\$1.85	\$1.80	\$1.75	\$1.70	\$1.65	\$1.60	\$1.55	\$1.50
12,900.....	1.984	1.93	1.885	1.835	1.780	1.746	1.686	1.637	1.587	1.538	1.488
12,800.....	1.969	1.92	1.870	1.821	1.766	1.733	1.673	1.624	1.575	1.526	1.476
12,700.....	1.953	1.90	1.856	1.807	1.752	1.719	1.660	1.611	1.563	1.514	1.465
12,600.....	1.938	1.89	1.841	1.793	1.738	1.706	1.647	1.609	1.550	1.502	1.453
12,500.....	1.923	1.87	1.826	1.778	1.725	1.692	1.634	1.596	1.537	1.490	1.442
12,400.....	1.907	1.86	1.818	1.764	1.711	1.679	1.621	1.583	1.525	1.478	1.430
12,300.....	1.892	1.84	1.807	1.750	1.697	1.665	1.608	1.571	1.512	1.466	1.429
12,200.....	1.876	1.83	1.783	1.736	1.683	1.652	1.595	1.558	1.500	1.454	1.417
12,100.....	1.861	1.81	1.768	1.721	1.669	1.638	1.572	1.545	1.487	1.442	1.406
12,000.....	1.846	1.80	1.753	1.707	1.656	1.625	1.559	1.533	1.475	1.430	1.394

Relative coal values, based on 13,000 to 14,000 B. T. U., when at certain prices for 13,000:—

14,000.....	\$2.143	\$2.10	\$2.046	\$1.992	\$1.932	\$1.884	\$1.830	\$1.776	\$1.723	\$1.669	\$1.615
13,900.....	2.138	2.08	2.031	1.978	1.924	1.871	1.817	1.762	1.710	1.657	1.603
13,800.....	2.123	2.07	2.016	1.963	1.904	1.857	1.804	1.751	1.698	1.645	1.592
13,700.....	2.107	2.05	2.002	1.946	1.890	1.844	1.791	1.728	1.686	1.633	1.580
13,600.....	2.092	2.04	1.987	1.935	1.876	1.830	1.778	1.726	1.673	1.621	1.569
13,500.....	2.076	2.02	1.973	1.921	1.863	1.817	1.765	1.713	1.661	1.609	1.557
13,400.....	2.061	2.01	1.958	1.906	1.849	1.803	1.752	1.700	1.648	1.597	1.546
13,300.....	2.046	1.99	1.943	1.892	1.835	1.790	1.739	1.688	1.636	1.585	1.534
13,200.....	2.030	1.98	1.929	1.878	1.821	1.776	1.726	1.675	1.624	1.573	1.523
13,100.....	2.015	1.96	1.914	1.864	1.807	1.763	1.713	1.662	1.612	1.561	1.511
13,000.....	2.00	1.95	1.90	1.85	1.80	1.75	1.70	1.65	1.60	1.55	1.50

Relative coal values, based on 13,000 to 14,000 B. T. U., when at certain prices for 13,000:—

14,000.....	\$3.230	\$3.123	\$3.015	\$2.907	\$2.80	\$2.692	\$2.584	\$2.476	\$2.369	\$2.263	\$2.143
13,900.....	3.207	3.100	2.993	2.886	2.78	2.672	2.565	2.458	2.352	2.246	2.138
13,800.....	3.184	3.078	2.972	2.865	2.76	2.653	2.547	2.440	2.335	2.230	2.123
13,700.....	3.161	3.056	2.950	2.844	2.74	2.634	2.528	2.423	2.318	2.214	2.107
13,600.....	3.138	3.033	2.926	2.824	2.72	2.615	2.510	2.405	2.301	2.197	2.092
13,500.....	3.115	3.011	2.907	2.803	2.70	2.596	2.492	2.388	2.284	2.181	2.076
13,400.....	3.092	2.989	2.886	2.782	2.68	2.576	2.473	2.370	2.267	2.165	2.061
13,300.....	3.069	2.966	2.864	2.762	2.66	2.557	2.455	2.352	2.250	2.148	2.046
13,200.....	3.046	2.944	2.843	2.741	2.64	2.538	2.436	2.335	2.233	2.132	2.030
13,100.....	3.023	2.922	2.821	2.720	2.62	2.519	2.418	2.317	2.216	2.116	2.015
13,000.....	3.00	2.90	2.80	2.70	2.60	2.50	2.40	2.30	2.20	2.10	2.00

Relative coal values, based on 13,000 to 14,000 B. T. U., when at certain prices for 13,000:—

14,000.....	\$4.806	\$4.20	\$4.092	\$3.984	\$3.876	\$3.768	\$3.660	\$3.552	\$3.446	\$3.338	\$3.230
13,900.....	4.276	4.185	4.062	3.956	3.848	3.742	3.634	3.524	3.420	3.314	3.206
13,800.....	4.246	4.14	4.032	3.926	3.820	3.714	3.608	3.502	3.396	3.290	3.184
13,700.....	4.214	4.105	4.004	3.892	3.793	3.688	3.582	3.476	3.372	3.266	3.160
13,600.....	4.184	4.08	3.974	3.870	3.765	3.660	3.552	3.452	3.348	3.242	3.138
13,500.....	4.152	4.044	3.946	3.842	3.738	3.634	3.530	3.426	3.322	3.218	3.114
13,400.....	4.122	4.02	3.916	3.812	3.710	3.606	3.504	3.400	3.296	3.194	3.092
13,300.....	4.092	3.985	3.886	3.784	3.682	3.580	3.478	3.376	3.272	3.170	3.068
13,200.....	4.060	3.96	3.858	3.756	3.655	3.552	3.452	3.350	3.248	3.146	3.046
13,100.....	4.030	3.925	3.823	3.723	3.622	3.526	3.426	3.324	3.224	3.122	3.022
13,000.....	4.00	3.90	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.10	3.00

Relative coal values, based on 14,000 to 15,000 B. T. U., when at certain prices for 14,000:—

15,000.....	\$4.285	\$4.178	\$4.071	\$3.963	\$3.857	\$3.750	\$3.642	\$3.535	\$3.428	\$3.324	\$3.214
14,900.....	4.256	4.150	4.043	3.937	3.831	3.725	3.617	3.511	3.405	3.301	3.192
14,800.....	4.228	4.122	4.016	3.910	3.805	3.700	3.593	3.488	3.382	3.279	3.171
14,700.....	4.199	4.094	3.989	3.884	3.779	3.675	3.569	3.464	3.359	3.256	3.149
14,600.....	4.171	4.066	3.962	3.858	3.754	3.650	3.545	3.441	3.336	3.234	3.128
14,500.....	4.142	4.039	3.935	3.832	3.728	3.625	3.521	3.417	3.314	3.212	3.107
14,400.....	4.114	4.011	3.908	3.805	3.702	3.600	3.496	3.394	3.291	3.189	3.085
14,300.....	4.085	3.983	3.881	3.779	3.677	3.575	3.472	3.370	3.268	3.167	3.064
14,200.....	4.057	3.955	3.854	3.752	3.651	3.550	3.448	3.347	3.245	3.144	3.042
14,100.....	4.028	3.927	3.827	3.726	3.625	3.525	3.424	3.323	3.222	3.122	3.021
14,000.....	4.00	3.90	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.10	3.00

These formulas can be proved, or any other proposition in heat values worked out, by an easy exercise in compound proportion. Thus to find the value of 15,000 B. T. U. if 14,500 are worth 4.60:—

$$14,500 : 15,000 : : 4.60 : 4.757+$$

The rule is multiply the second and third factors (15,000 and 4.60) and divide by the first—14,500.

To prove; the product of the extremes (14,500 and 4.757+), multiplied, is equal to the product of the means (15,000 and 4.60), multiplied.

CANADIAN PIG IRON PRODUCTION IN 1909.

James M. Swank, of the American Iron & Steel Association, reports that the total production of all kinds of pig iron in Canada in 1909 amounted to 677,090 tons, against 563,672 tons in 1908, an increase of 113,418 tons, or over 20 per cent.

The production of basic pig iron in Canada in 1909 amounted to 357,965 tons, against 335,410 tons in 1908, and the production of Bessemer pig iron to 169,545 tons, against 112,811 tons in 1908. Basic pig iron was made in 1909 by four companies owning nine furnaces, and Bessemer pig iron by two companies owning three furnaces. The basic and Bessemer pig iron was all made with coke. Canada has not made spiegeleisen or ferromanganese since 1899.

On December 31, 1909, Canada had 16 completed furnaces, of which eleven were in blast and five were idle. Of the total, twelve usually use coke for fuel and four use charcoal. In addition three coke furnaces were being built on December 31st.

During 1909 the Canadian furnaces consumed 1,311,796 tons of iron ore and 58,731 tons of mill cinder, scale, etc., in the manufacture of pig iron. In addition they consumed 470,080 tons of limestone for fluxing purposes.

INCREASE IN U. S. COAL OUTPUT SINCE 1850.

Attention has been called in previous reports to the rapid growth in the coal-mining industry, and to the fact that in each decade the output has been practically doubled. The year 1908 was a notable exception to the general increase, but it was essentially an exception. Now that the country has recovered from the effects of the financial depression, a continual increase in the annual production may be looked for.

In the decade ending December 31, 1905, the total production amounted to 2,832,402,746 tons, and the grand total from the beginning of coal mining amounted to 5,970,576,865 tons. The average annual production from 1896 to 1905 was 283,240,275 tons, compared with which the average production for the three years from 1906 to 1908, inclusive (436,787,800 tons), showed an increase of 153,547,525 tons, or 54.2 per cent.

This great increase in the production of coal when considered with the increase in population furnishes some interesting comparisons. Going back to the middle of the last century, and comparing the coal production with the population, we find that in 1850, according to the United States census, the production of coal amounted to 6,445,681 tons and the population of the country was 23,191,876. The per capita production of coal in that year was thus 0.278 ton. Ten years later the population was 31,443,321 and the coal production amounted to 16,139,736 tons, or an average of 0.514 ton per person. At the census of 1870 the coal production showed a per capita average of 0.96 ton. Ten years later it was 1.52 tons per capita. In 1890 the population had grown to 63,069,756, an increase of 25 per cent. over 1880, while the coal production had grown to 157,770,963 tons, or a per capita output of 2.52 tons.

At the taking of the twelfth census, in 1900, the increase in population for the decade amounted to 22 per cent., the total number of persons reported being 76,303,387, while more than 70 per cent. had been added to the coal production, the total being 269,684,027 tons, or an average of 3.53 tons for each inhabitant. In other words, while the population from 1850 to 1900 showed an increase of 230 per cent., the production of coal increased 4,084 per cent. The director of the Bureau of the Census estimated the population of the United States on June 1, 1907, at about 85,500,000 persons, making the per capita production in that year 5.6 tons, so that in less than 60 years the per capita production of coal in the United States had increased from a little more than one-quarter of a ton to five and one-half tons. If the population of the United States in 1908 was estimated at 87,000,000 persons, the per capita production for that year was 4.78 short tons.

It is true that in the earlier years covered by this resume the proportion of wood used for fuel was larger than it is at present, but the actual consumption of wood for fuel purposes is probably as great to-day as it was 50 years ago. It should also be remembered that in addition to the production of coal, there has been a great increase in the use of oil for fuel purposes, and natural gas still remains an important factor in the situation.

Spontaneous combustion of coal is an old story. Much has been written in regard to it, both in description of the phenomenon and in regard to means of prevention, but we note by scattering items here and there that coal-pile fires are occurring all the time. Perhaps the necessary precautions are not taken against spontaneous combustion. Owners of coal piles seem to be quite willing to take a chance, presuming, we surmise, that their particular coal will be free from accident.

COAL TONNAGE OF THE WORLD—1908.

Country.	Tons of 2,240 lbs.	Tons of 2,000 lbs.
United States	371,288,123	415,842,698
Great Britain	261,506,379	292,887,144
Germany	215,283,474	237,306,973
Austria-Hungary* †.....	†48,180,349	53,109,750
France	†37,622,556	41,471,343
Belgium	†22,679,300	24,999,392
Russia*	†26,023,344	28,685,532
Japan*	†13,935,952	15,361,600
India	12,769,635	14,301,991
Canada	†10,904,466	10,904,466
Australia	9,147,025	10,244,668
Spain*	† 3,887,236	4,284,900
New Zealand*	1,831,009	2,050,730
Africa	3,012,692	3,374,215
Italy*	† 532,780	587,283
Other countries	7,000,000	7,840,000
Total	1,167,941,188	1,042,804,632

Geological Survey figures for U. S.—Others from various sources.

* 1907; † metric tons; ‡ net.

COKE MAKING COUNTIES OF PENNSYLVANIA.

Tonnages of coke made in the several counties for the years named as per report of the Pennsylvania Department of Mines:—

County.	1903.	1904.	1905.	1906.	1907.	1908.
Bedford	99,532	65,748	119,488	89,930	122,771	46,841
Blair	81,318	18,183	41,999	48,802	54,263	29,858
Cambria	455,192	533,618	864,295	818,493	1,002,781	824,206
Clearfield	185,436	12,567	142,610	133,849	196,940	125,639
Elk	34,203	29,321	40,537	27,838	35,784	22,097
Fayette	7,995,114	7,997,834	10,782,017	12,765,012	14,456,953	8,834,154
Indiana	110,910	48,745	157,453	114,648	170,317	99,373
Jefferson	723,749	625,330	817,345	490,352	687,408	298,690
Somerset	45,419	261	50,183	25,868	60,874	1,700
Westmoreland	4,531,219	3,952,934	5,437,342	6,053,574	6,497,815	3,307,665

Washington is credited with 222,284 tons, and Huntingdon with 25,949 tons in 1908.

PRODUCTION OF TENNESSEE COAL, IRON & RR. CO.

All tons of 2,000 pounds.	Alabama.	Tennessee.	Totals.
1905—Coal	2,049,907	181,752	2,231,659
Coke	851,762	38,872	890,634
1906—Coal	2,815,102	192,555	3,007,657
Coke	788,027	38,176	826,203
1907—Coal	3,360,516	222,384	3,582,900
Coke	1,141,569	31,429	1,172,569
1908—Coal	2,566,607	212,606	2,779,213
Coke	867,510	16,328	883,838
1909—Coal	2,781,044	263,758	3,044,802
Coke	992,808	16,824	1,009,632

THE CANNEL COAL TRADE.

The cannel coal trade is a very small but interesting feature of the coal business, continuing on a very limited tonnage basis and substantially the same in volume year after year, notwithstanding the great increase in other lines of the coal trade. There is a moderate demand from places far and near, divided between fire department requirements and the demands of a certain fashionable or aristocratic trade that uses cannel for grate fires.

English cannel is probably the most expensive coal burned. It was formerly quite a feature of the business of some of the New York city dealers, but of late years there has been a great falling-off in the quantity used in this country. Twenty years ago the imports of this fuel from Great Britain would range from 30,000 to 40,000 tons yearly, all of which was used in New York, in the residences of wealthy and well-to-do families and in office buildings. But with the introduction of modern heating methods and the exploitation of the cannel deposits of the United States the use of English cannel in New York declined, gradually, but steadily, until now it is well advanced toward the disappearing point. It is estimated that the present tonnage does not much exceed 2,000 tons per annum.

The heating of office buildings by steam has been the most potent factor in bringing about the great diminution in the local demand for English cannel. A quarter of a century ago, and less, stoves and fireplaces were in universal use in offices, and much cannel was burned in open grates in business places. With the introduction of steam heat, practically all of this business disappeared, and now the only demand comes from old families who have used this grade of fuel for years and still retain their preference for a genuine open fire in their residences, as against gas logs and other imitations of the real thing.

The coal is brought over in bulk, in the holds of liners and in small consignments. Some of the shipments are of only a few tons each, while the largest run between 50 and 200 tons, seldom or never exceeding the latter figure. It is classed as bituminous by the custom officials, and consequently is subject to a duty of 45 cents a ton. There are certain other items of expense involved in handling it at this end, so that with the high mine price, the allowance that has to be made to cover breakage, and the margin of profit retained by the dealer, the retail price is in the neighborhood of \$16 to \$17. This compares with \$13 to \$14 per ton as the local retail price of American cannel.

Boston is probably the only city in the United States, aside from New York, where English cannel is sold in appreciable quantities. The tonnage of the New England metropolis is estimated at from 1,200 to 1,500 tons per annum. Here, too, there has been a great falling off during the past 20 years in the tonnage used.

American cannel comes principally from Kentucky, although for many years it has been mined in limited quantities in certain restricted areas of Indiana and Ohio, while recently deposits have been developed in West Virginia. The cannel output of Kentucky is upward of 100,000 tons a year. Most of it is consumed in Kentucky, Indiana and Ohio, where it finds considerable favor as a domestic fuel. Shipments are made, however to widely separated points, and some of it is sent long distances. Most of that sent beyond the borders of the three States mentioned is used for special purposes, as the freight of the long hauls is so great that its delivered cost makes it prohibitive as a domestic fuel for common use in stoves. An important part of the tonnage sent to distant places is used by city fire departments, while the remainder is burned in open fires in dwelling houses.

At places where all coal is high cannel is popular. Farmers in the Northwest like the large lumps.

In West Virginia the mining of cannel on a commercial scale is quite a recent feature, a development of the last decade. No exact figures of output are available, as the coal is classed as bituminous in the reports of the State mining officials, but probably the tonnage will not greatly exceed 15,000 tons per annum. The cannel coal tonnage of Ohio and Indiana is trifling and what small amount is mined in those States is consumed near the points of production. None of this coal finds its way East.

READING ANNUAL FINANCIAL STATEMENT.

The operations of the three companies for the fiscal years ended June 30th were as follows:—

Railway Company.	1907-08.	1908-09.
Receipts	42,664,595	40,267,261
Expenses, including renewals, etc...	25,458,296	23,825,678
Net earnings.....	17,206,299	16,441,582
Coal & Iron Company.		
Receipts	38,014,420	34,792,694
Expenses	34,304,802	32,045,868
Net earnings.....	3,709,617	2,746,825
Reading Company.		
Net income.....	7,592,333	9,076,153
Net earnings of all companies.....	28,401,060	28,230,589
Fixed charges and taxes of all Cos..	14,639,802	14,809,976
Railway additions and betterments..	937,659	1,805,722
Coal and Iron new work, interest and depletion	3,384,845	2,572,975
Surplus	9,448,752	9,041,914

THE GROWING USE OF EXPLOSIVES.

Production of soft coal in tons of 2,000 pounds, number of tons produced per employe inside, quantity of explosives used, and number of tons of coal produced for each pound of explosive used, 1899 to 1908, inclusive, in the State of Pennsylvania:—

Year.	Total production of coal.	Av. tons per employe inside.	Pounds bk. powder used.	Pounds of dynamite used.	Av. tons coal per pound explosive.
1899.....	73,066,943	975	6,660,700	222,076	10.62
1900.....	79,318,362	884	7,409,925	243,517	10.36
1901.....	80,914,236	847	7,851,500	693,801	9.47
1902.....	98,970,426	900	9,966,725	921,149	9.09
1903.....	103,713,982	837	11,145,725	1,136,305	8.44
1904.....	99,600,167	769	12,626,275	1,360,161	7.12
1905.....	119,361,514	878	15,194,150	2,159,680	6.88
1906.....	129,532,989	913	18,119,650	2,425,073	6.30
1907.....	149,559,047	995	16,874,225	3,425,494	7.37
1908.....	114,937,375	754	12,738,800	2,193,944	7.70

From report of Hon. James E. Roderick, Chief, Pennsylvania Department of Mines.

THE MANUFACTURE OF COKE IN 1908.

According to the report of E. W. Parker on the manufacture of coke, the combined production of beehive and retort-oven coke in the United States in 1908 amounted to 26,033,518 tons, against 40,779,564 tons in 1907. In the earlier year the production exceeded all previous records in the history of coke making in the United States; the average price per ton in that year was also the highest ever recorded. Compared with 1907, the production in 1908 shows a decrease of 14,746,046 tons, or 36.14 per cent. The average price per ton at the ovens declined from \$2.74 to \$2.40. Of the total 1908 output 21,832,292 tons, or 83.86 per cent., was produced in beehive ovens and 4,201,226 tons, or 16.14 per cent., in retort ovens. The decrease in beehive coke from 1907 was 13,339,373 tons, or 37.93 per cent., and in by-product coke 1,406,673 tons, or 25.08 per cent.

The quantity of coal consumed in the manufacture of coke in 1908 was 39,440,837 short tons. The value of the coke produced from this coal was \$62,483,983, a difference of \$17,261,509, which, less the cost of manufacture and the expense of administration, etc., represents the profit on the coking operations. In 1907 the value of the coke produced was \$111,539,126, a difference of \$38,754,275.

After the depression which marked the closing months of 1907, the early part of 1908 showed signs of returning activity in the iron industry, and there were some indications of revival of business in the coke-making districts. During January the production increased considerably as compared with the closing months of 1907, and operators were hopeful of an early return of prosperity. Toward the latter part of February, however, the demand and production fell off, and by March there was a general depression in the business. Conditions improved slightly later in the year, and in December two-thirds of the ovens were in operation and one-third idle, as compared with the reverse condition in May. Altogether, however, the year 1908 must be considered one of general stagnation in the coke-making industry. The average price per ton was lower than that of either 1906 or 1907, but exceeded that of 1904 and 1905.

Notwithstanding the decrease in production in 1908 as compared with 1907 there was an increase in the number of ovens from 99,680 to 101,218. Of the total number of ovens 12,920 were idle throughout the year 1908, though many more were out of blast for a good portion of the time. In 1907, out of a total of 99,680 ovens 4,934 were idle during the year. The average production of the active ovens was 294.8 tons in 1908, as against 430.04 tons per oven in 1907. The average production for each beehive oven for the four years named was 365.8 tons in 1905, 373.6 tons in 1906, 386.8 tons in 1907, and 258 tons in 1908. The average production for the retort ovens in the same years was, respectively, 1,158.8, 1,356, 1,472 and 1,142 tons. In 1905 the average production from by-product ovens was a little more than three times that from beehive ovens, and in 1908 it was nearly six times.

INDIA'S COAL PRODUCTION.

The production of coal in India in 1908 was 12,770,000 tons, an increase of 1,623,000 tons over 1907, or 15 per cent. The output was 30 per cent. larger than in 1906.

Without an adequate number of engines, the best built road, equipped with thousands of cars, is an ineffective mechanism.

MICHIGAN.

Commissioner of Labor reports output as below, in gross tons, for years ending November 30th:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	315,722	1902.....	964,718	1906.....	1,346,338
1899.....	624,728	1903.....	1,367,619	1907.....	1,898,426
1900.....	849,475	1904.....	1,342,840	1908.....	1,839,927
1901.....	1,241,241	1905.....	1,473,211	1909.....	1,757,820

For a period of several years, commencing about a decade ago, steady and notable progress was made in developing the coal resources and increasing the output of the State, although during the half-dozen years preceding 1907 there was comparatively little change in the tonnage produced—allowing for the '02 strike. As will be noted by the tabulation printed above, the 1907 output was the largest achieved by the mines of the State.

Despite the claims of geologists as to resources coal men are apparently agreed in the opinion that the Saginaw Valley, including Saginaw and Bay Counties, which contains practically all the coal in Michigan worth mentioning, will never be anything more than a source of supply for the district which it now serves, namely, upper part of lower peninsula and a portion of the upper.

Coal has been mined in Michigan since 1835, the earliest mines to be opened being in the so-called Jackson field near the site of the city of Jackson. Three years later mines were opened at Grand Ledge, Eaton County. The first official report of their output is contained in the United States census report of 1860, in which a production of 2,320 tons is credited to Michigan.

Production in the several counties, as reported by the U. S. Geological Survey, in recent years has been:—

County.	1903.	1904.	1905.	1906.	1907.	1908.
Bay	325,021	410,634	544,154	481,398	962,574	782,503
Eaton	7,393	9,057	4,058	18,507	5,982	2,286
Jackson	23,307	16,860	9,196	8,658	5,645	5,539
Saginaw	1,011,898	906,289	915,803	835,475	1,047,927	999,338
Shiawassee .....	.....	.....	.....	2,300	13,730	45,353
Total net tons.	1,367,619	1,342,840	1,473,211	1,346,338	2,035,858	1,835,019

SHIPMENTS OF ANTHRACITE BY REGIONS.

The following figures show that the three great anthracite regions preserve a notable regularity of proportionate output as the years go by.

Year.	Schuylkill.	Lehigh.	Wyoming.	Total.
1900.....	13,502,732	6,918,627	24,686,125	45,107,484
1901.....	16,019,591	7,211,974	30,337,036	53,568,601
1902.....	8,471,391	3,470,736	19,258,763	31,200,890
1903.....	16,474,790	7,164,783	35,723,258	59,362,831
1904.....	16,612,055	6,588,182	33,892,285	57,492,522
1905.....	17,703,099	7,849,205	35,857,897	61,410,201
1906.....	16,011,285	7,046,617	32,640,693	55,698,595
1907.....	20,141,288	8,329,653	38,638,452	67,109,393
1908.....	18,006,468	7,786,255	38,872,295	64,665,014
1909.....	16,864,147	7,532,271	37,573,467	61,969,885

MINING OPERATIONS IN NEW MEXICO.

Jo E. Sheridan, United States Mine Inspector for New Mexico, reports that the coal mining industry in the Territory continued in 1909 the growth it had maintained during the previous decade. Although the gross production—3,080,360 tons—was the largest ever reported, it did not tax the mines one-half their capacity. The quantity used in operating the mines was 40,200 tons; the net tonnage shipped from the mines was 3,040,160 tons. Of this net tonnage 880,892 tons of unwashed slack and coal was sent to the washeries and coke ovens at Dawson, Koehler, and Gardiner, and 2,159,268 tons of coal was shipped to market and sold at an average price of \$1.54 per ton. The amount of coke produced was 442,068 tons, which sold at an average price of \$3 per ton at the ovens.

The average number of days the mines were operated was 240; the number of miners employed was 2,240; the average production per day for each miner was 5.73 tons. The coal mining industry of the Territory now gives employment to more than 4,000 persons.

Several influences retarded the growth of the coal mining industry in this Territory during the year. Coal mining in New Mexico is largely dependent on the copper mines and smelters and the lead and zinc mining industries of the Southwest, which produces not only these metals but also gold and silver. The rather dormant general industrial conditions in the early part of the year restricted the demand for copper from the mines of the Southwest and reduced the demand for coal and coke produced by New Mexico mines and coke ovens.

Another obstacle was the competition of fuel oils, oil from Oklahoma and Texas replacing coal as fuel on fully 3,000 miles of railroads on the Pacific coast and in Texas and throughout the Southwest and invading the coal and coke market at the copper-smelting plant at Cananea, Mexico. Oil from California fields was used as fuel on the Southern Pacific RR. from San Francisco and Los Angeles, Cal., eastward by way of El Paso, Tex., to points where the oils of Texas and Oklahoma were used for replenishing the supply in the locomotive tenders. On the Atchison, Topeka & Santa Fe Ry. oil was used from the Pacific coast to Seligman, Ariz.

This competition of fuel oil with coal will continue for several years and must be considered in calculating the future production of coal from the mines of the Southwest.

EDUCATIONAL VALUE OF COAL MINE FOSSILS.

"Discoveries in the coal mines of central France," says 'Harper's Weekly,' "have furnished by far the greatest advance that has ever been made in our knowledge of the insects which inhabited the world millions of years, as geologists believe, before the time when man made his appearance upon the earth. In that wonderful age when the carboniferous plants, whose remains constitute the coal-beds of to-day, were alive and flourishing, the air and the soil were animated by the presence of flies, grasshoppers, cockroaches, dragon-flies, spiders, locusts, and scores of other species which exist but slightly changed at the present time. But the insects of those remote times attained a gigantic size, some of the dragon-flies measuring two feet from tip to tip of their expanded wings. The remains of these insects have been marvellously preserved in the strata of coal and rock."

LABOR EMPLOYED IN COAL MINING IN UNITED STATES.

State or Territory.	1905		1906		1907		1908	
	Days active.	Em- ployes.	Days active.	Em- ployes.	Days active.	Em- ployes.	Days active.	Em- ployes.
Alabama	225	19,595	237	20,555	242	21,288	222	19,197
Arkansas	177	4,192	165	4,298	190	5,085	145	5,337
California	294	144	253	56	187	76	220	49
Colorado	255	11,020	268	11,368	258	14,223	212	14,523
Georgia	266	816	219	737	262	808	261	670
Idaho	107	37	157	25	121	22	160	24
Illinois	201	58,053	192	61,988	218	65,581	185	68,035
Indiana	151	25,323	175	20,970	197	21,022	174	18,390
Iowa	209	15,113	224	15,280	230	15,585	214	16,021
Kansas	212	11,926	165	14,355	225	12,439	181	13,913
Kentucky	200	14,685	212	15,272	210	16,971	186	16,996
Maryland	252	5,948	250	6,438	263	5,880	220	6,079
Michigan	186	3,696	173	3,971	224	3,982	207	4,247
Missouri	194	3,962	185	5,557	214	8,448	169	8,988
Montana	243	7,181	243	2,394	268	2,735	224	3,146
New Mexico	234	2,108	242	2,070	269	2,970	197	3,448
North Dakota	187	626	167	45,438	199	46,833	161	47,407
Ohio	176	43,399	209	488	223	562	182	651
Oklahoma	198	7,712	160	8,251	216	8,398	172	8,651
Oregon	242	816	224	209	231	184	249	214
Pennsylvania bituminous	231	148,629	231	152,099	255	163,235	201	165,961
Tennessee	222	12,198	229	11,452	232	12,052	209	11,812
Texas	238	3,008	227	3,045	242	4,227	254	4,400
Utah	247	1,361	288	1,572	258	2,203	227	2,654
Virginia	241	5,730	250	5,131	241	6,670	200	6,208
Washington	227	4,765	266	4,523	273	5,945	202	5,484
West Virginia	209	48,389	220	50,960	230	59,029	185	56,801
Wyoming	236	5,977	281	5,934	275	6,645	217	6,915
Total	211	460,909	213	478,425	234	513,253	193	516,264
Pennsylvania anthracite	215	165,406	195	162,355	220	167,234	200	174,174
Grand total	219	626,315	209	640,780	231	680,492	195	690,438

Numbers are "averages"; figures furnished by U. S. Geological Survey.

ANTHRACITE COAL PRODUCT IN 1908 BY COUNTIES.

While information in regard to shipments of anthracite is promptly available each month, figures in regard to the distribution thereof are not available for some time after the close of each calendar year. For that reason we are able to show in the following table only the tonnage for the year 1908. It is safe to say, however, that the proportion of coal used for the several purposes specified does not vary much from one year to another.

The "local" is sold for use in the vicinity, while that used "at mines" is for operating purposes. Statement prepared by W. W. Ruley:—

County.	Shipments.	Local.	At Mines.	Total.
Susquehanna	388,994	10,375	35,293	434,662
Lackawanna	17,654,782	386,684	1,615,802	19,657,268
Luzerne	24,553,934	669,688	2,753,107	27,976,729
Carbon	2,056,630	60,640	259,180	2,376,450
Schuylkill	13,935,526	258,286	2,088,154	16,281,966
Columbia	911,681	16,428	127,539	1,055,648
Sullivan	453,961	6,039	31,710	491,710
Northumberland	4,609,627	105,067	592,057	5,306,751
Dauphin	553,840	23,366	188,712	765,918
Total	65,118,975	1,536,573	7,691,554	74,347,102

THE PROBLEM OF FUEL ECONOMY.

Among the many problems that confront the manufacturer, none is more important, broader or more elastic than that of fuel economy. No matter what measures the factory superintendent resorts to in his effort to comply with the order to "cut down expenses," he must keep up the supply of fuel, for the boiler room is necessarily the power center of the entire works. He must economize, and how to economize in fuel is a much-mooted question.

Fuel economy primarily begins with the construction of the boiler room and the machinery. It is no uncommon thing to find boiler rooms and boilers improperly built for the advantageous handling of fuel. Probably the two most common reasons for this are: the plant is a growth or series of additions to a small building, or the boiler room was designed by an architect and not by an engineer. To be consistent with modern economical systems the planning of the boilers and boiler room should be left to a competent engineer. He can arrange and provide for the first factor in fuel economy—the unloading, storing and handling of fuel. The arrangement of the boiler room and fuel bins plays a large part in the economical handling of fuel. In a large plant where the consumption of fuel annually involves an item of thousands of dollars, the saving of a small per cent. on the dollar means a great deal in a short time.

The boiler rooms and fuel bins should always be arranged to have the advantage of a gravity descent. This means the saving of from 25 to 40 per cent. in handling the fuel.

Auxiliary appliances, such as feed water purifiers, heaters, draft devices, etc., are important factors in the solution of the fuel economy problem. Purify your feed water and then heat it before it enters the boiler and a large percentage of waste is done away with. Devices for the acceleration of draft play an important part in economizing in fuel. One of the most common and efficient devices is a blower arranged in the smokestack to produce draft as required.

Another important point in fuel economy is in firing. How to properly fire a boiler is a problem that has worried many manufacturers. The automatic stoker has been used to great advantage and it is being constantly improved. The trouble with firemen usually lies in the fact that the ordinary employe has had no training. He may have had little or no training, or he may have been trained to fire a boiler entirely different from the one at which he is now at work. The fireman, who, it is true, receives small wages, handles fuel enough, and may throw away enough in the course of a year to knock a handsome percentage off the profits of the plant.

The second factor bearing upon fuel economy is the physical condition of the boiler and its auxiliary appliances. The furnace is a subject of primary importance. Of course, every manufacturer knows that he needs a certain kind of furnace for coal, another for shavings or sawdust, etc., but how many realize that to do the work required of it at a minimum expense, the furnace must be specially constructed for the work cut out for it?

To make a long story short, the best results are only obtainable when the physical condition of the boiler room is right; when the boiler and its auxiliary appliances are right, and when the proper grade of fuel is used.

Egypt imports about 1,400,000 tons of coal per annum, the returns for one year and another showing little variation.

LEHIGH VALLEY RR. CO.—FINANCIAL REPORT.

The following statement shows the gross earnings, expenses and net earnings from operations for the fiscal year ending June 30, 1909, entire system, not including other income. For comparative purposes, similar figures are also given for the fiscal years 1908, 1907, 1906 and 1905.

	1905.	1906.	1907.	1908.	1909.
Gross earnings from					
Coal	\$13,530,337	\$13,248,565	\$15,110,899	\$16,175,279	\$14,831,670
Other freight	12,532,582	13,934,127	14,996,672	14,011,301	13,291,830
Passenger	3,509,825	3,971,392	4,363,452	4,159,890	3,905,062
Express	337,107	367,706	373,953	383,558	406,225
Mail	207,660	217,745	217,792	209,072	209,899
Miscellaneous	1,258,328	1,050,319	1,005,661	571,051	493,143
Total earnings	31,275,842	32,789,856	36,068,431	35,510,154	33,137,832
Operating expenses for					
Maint. of way, etc.....	3,269,382	3,153,245	3,196,854	3,496,138	3,273,339
Maint. of equipment....	4,894,269	5,485,794	6,186,641	5,987,410	5,832,430
Conducting trans.	10,179,027	10,891,953	12,100,681	12,146,148	10,760,202
General expenses	587,011	621,217	630,075	574,006	709,764
Total expenses	18,929,701	20,152,210	22,114,252	22,203,704	20,575,736
Net earnings	12,346,141	12,637,645	13,954,178	13,306,449	12,562,095
Percentage, operating ex- penses to gross earn..	60.52	61.46	61.31	62.53	62.09

Here, as elsewhere, some slight differences may be noticed in amounts because of figures having been revised in some reports to conform with practice of Interstate Commerce Commission.

NORTH DAKOTA.

The tonnage in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1904.....	271,928	1906.....	305,689	1908.....	320,742
1905.....	317,542	1907.....	347,760	1909.....	350,000

The lignite beds on the plains of North Dakota and Montana reach their maximum thickness at, perhaps, 40 feet. A bed of this thickness, outcropping on the surface near the Little Missouri River, is well known. Beds 15 feet thick are not uncommon. Wells at Dickinson and Medora, which reach a depth of 900 feet, passed through 60 feet of lignite, the thickest seam being 22 feet. This is one of the States of small production from which it is difficult to get early returns. The State Mine Inspector estimates last year's production as above. The chief producer in the State is the Washburn Lignite Coal Co., with operations at Washburn.

LAKE TONNAGE BY DISTRICTS; SIX YEARS.

In an exhaustive article covering the coal situation for the year 1909, President John H. Jones, of the Pittsburg-Buffalo Co., shows the lake tonnage from all districts for the six years ending with 1909 to be as follows:—

District.	1904.	1905.	1906.	1907.	1908.	1909.
Pittsburgh ..	6,058,383	7,443,883	9,287,272	10,549,995	8,700,000	8,687,305
Ohio	2,138,247	2,062,692	2,560,906	4,074,296	3,600,000	3,002,815
W. Virginia..	1,279,876	2,109,262	2,743,732	3,420,941	3,450,000	3,874,570
Total ...	9,476,506	11,615,837	14,591,910	18,037,232	15,750,000	15,364,690

ELECTRIC HAULAGE INTERFERES WITH VENTILATION.

In a recent annual report Chief Mine Inspector Harrison, of Ohio, says:

"In late years the system of hauling coal extraordinarily long distances by tail rope and electric motor has had its effect on mine ventilation. A few years ago it was the exception to see a mine with a capacity of handling over 1,000 tons of coal per day, and seldom did a company anticipate working more than 200 or 300 acres of territory from one opening, realizing that it was cheaper, especially where the seam lay above water level, to make a new opening than to continue the cost of maintaining long haulage.

"The new methods of long-distance high-speed haulage have induced coal companies to acquire large possessions of adjacent coal lands and re-develop their old mines, rather than seek new locations for openings, avoiding the building of new tipples, or extending railroad switches, and reaching large bodies of coal that could not possibly be reached by overland railroad tracks.

"The new developments are almost universally equipped with electric mining machines, large mine cars and high speed haulage, the calculations being to increase the production to probably two, three or four times its original daily output. All such mines were originally opened as pick mines, the opening, entries and airways and all equipment being in keeping with the times at the time of opening, the entries usually running six or seven feet wide, seldom ever more than eight feet. In the majority of the mines referred to the coal is now hauled by electric motor or tail rope one and one-half or two miles through the old original territory in the old main entry, which is also used as the inlet or return for the air current which in itself is often too small an area for the volume required to supply the increased number of men employed in the new development, but when we realize that there is a long trip of large mine cars which almost fills the whole space in the entry running at high speed to and fro from morning until quitting time, drawing the black damp from old workings, continually buffeting and interrupting the ventilating current, it is very easy to imagine how impossible it is to maintain proper ventilation under such circumstances.

In such a mine there ought to be two separate and distinct openings in the interior of the mine, and the ventilation ought to be independent and not liable to fluctuations caused by the travel of long trips of cars propelled by high speed power of any description. Haulways of this character should never under any circumstances be used as an intake or return airway."

HEAVY DECREASE IN 1908.

Prior to 1908 the greatest proportionate decrease in the coal output of the United States, comparing one year with another, was in 1894, when the falling off, compared with 1893, was about 12 million tons. The 1908 tonnage, compared with that of 1907, showed a decrease of over 74 millions, practically all in bituminous coal. Thus the decrease was more than six times as great as in the most unfavorable prior year. So that while the 1908 tonnage was almost equal to that of 1906, a comparison with 1907 will prove most unfavorable on any basis, and it was the change from 1907's record, rather than the loss of growth or the volume of business actually done, that gave pause to the soft coal man.

ERIE RAILROAD FINANCIAL REPORT.

All lines, years ending June 30th.	1906.	1907.	1908.	1909.
Miles operated	2,151	2,168	2,176	2,230
Gross earnings	\$50,002,634	\$53,914,827	\$50,007,602	\$50,441,161
Expenses and taxes.....	35,872,837	38,167,039	41,089,032	36,904,285
Net earnings	14,129,797	15,747,788	8,918,570	13,536,876
Income from other sources.....	537,301	2,202,625	2,750,467	3,276,002
Total	14,667,098	17,950,413	11,669,038	16,812,879
Deductions from income.....	9,650,454	12,046,754	13,292,460	13,865,235
Balance	5,016,643	5,903,658	*1,623,422	2,947,643
Less expended for improvements...	1,926,973	1,642,028	575,803	351,926
Balance for year transferred to credit of profit and loss.....	3,089,670	4,261,630	†2,199,226	2,565,717
Less dividends:—				
4% first preferred.....	1,915,696	1,915,696	.....	.....
4% second preferred.....	640,000	640,000	.....	.....
Surplus	533,974	1,705,933	.....	.....
*Net loss for the year. †Debit, Profit and loss.				

Here, as elsewhere, some slight differences may be noticed in amounts because of certain changes made in method of compilation to conform with the practice of the Interstate Commerce Commission.

BUFFALO, ROCHESTER & PITTSBURGH ANNUAL STATEMENT.

The report of Buffalo, Rochester & Pittsburgh Ry. Co. shows as follows for the fiscal year ended June 30, 1909, and in comparison with previous years:—

Detail.	1905.	1906.	1907.	1908.	1909.
Gross earnings	\$8,161,079	\$7,829,451	\$8,666,580	\$8,408,144	\$7,171,896
Operating expenses	5,058,812	4,559,112	5,142,342	5,174,012	4,665,170
Net earnings	3,102,266	3,270,338	3,524,237	3,234,132	2,506,725
Charges	1,714,995	1,759,694	1,985,033	2,271,469	1,767,482
Balance	1,387,271	1,510,644	1,539,204	962,662	1,042,422
Extraordinary expenses and improvements..	97,228	93,253	103,965	.....	.....
Special appropriation ..	316,287	300,888	204,782	.....	12,483
Total	413,516	394,141	308,747	.....	12,483
Balance	973,755	1,116,502	1,230,456	962,662	1,029,938
Dividends	900,000	990,000	990,000	885,000	780,000
Surplus	73,755	126,502	240,456	77,662	249,938

WABASH RAILROAD COAL TONNAGE.

Interest attaches to the coal business of the Wabash RR. because of its recent activity looking to the carrying of coal from producing regions of Ohio, West Virginia and Pennsylvania. In recent years its tonnage has been:—

Years ending June 30.	1904.	1905.	1906.	1907.	1908.	1909.
Anthracite	321,011	309,875	347,850	399,520	334,327	359,272
Bituminous	2,512,772	2,881,064	3,190,462	3,472,193	3,275,885	*3,528,027
Coke	42,666	27,597	35,114	68,049	35,372	.....
Totals	2,876,449	3,218,536	3,575,426	3,939,762	3,645,584	3,887,299

* Including coke.

PROPER VENTILATION OF MINES IS ESSENTIAL.

The mine laws of Pennsylvania, both anthracite and bituminous, provide for a sufficient quantity of air for the mines, if properly conducted to the working faces, to keep them in reasonably healthy condition. But, notwithstanding the laws regarding this matter, we hear constantly of men in non-gaseous mines, and sometimes in gaseous mines, suffering from powder smoke and foul air due entirely to the foreman's neglect to carry or conduct the air to the working faces.

There can be no excuse for this dereliction of duty, as the companies in almost every instance have provided sufficient power for ventilating all parts of their mines. The law, however, should be more definite as to where the air currents should be measured. In addition to the places mentioned in the law, the mine foreman should measure the air once each week in the last cut-through or cross-cut in the first room or breast, and in the last cut-through or cross-cut in the last room or breast, of every entry or gangway, and at the last cut-through or cross-cut in each entry or gangway. The mine worker is entitled to an ample quantity of air to carry away the noxious and explosive gases from his working place so that he can be reasonably safe and healthy.

Chief Roderick in a recent report states that on several occasions it has been reported on undoubted authority that many of the superintendents interfere with and obstruct the mine foremen in their endeavor to carry out the provisions of the law, which demand that the air current be conducted to the working faces, by neglecting to provide boards and canvas and other things that may be needed. As the foreman is directly under the superintendent, he cannot very well enter complaint, unless at the same time he tenders his resignation. To remedy this evil, he suggests that the following, in substance, be added to the mine laws of Pennsylvania:

"It is hereby made the duty of the superintendent personally, if practicable (if not, he shall send an equally competent person), to inspect every working place in every mine, under his charge, once every month, to see that the provisions of the mine law are complied with generally, and he shall especially see that the ventilation is conducted to the working faces in sufficient quantities to drive away smoke and noxious gases, so that the working faces shall be in a healthy condition to work in. He, or his deputy, shall enter in a book with ink, provided for that purpose by the Department of Mines, the true condition of the mine as to its general safety and drainage, and especially state if the working faces and entries are properly ventilated according to law. The book shall be kept in the mine office at the mine, and open for examination by the inspector and any workman who may think his place is not properly ventilated. It shall be the duty of the inspector to enter complaint to the court against any superintendent that fails or neglects to carry out this provision of the law. If the superintendent be found guilty, he shall be fined not less than \$100 for each offence, or be imprisoned for not more than ten days, or both, at the discretion of the court."

MILEAGE OF THE WORLD'S RAILWAYS.

A very useful report issued by the bureau of statistics of the Department of Commerce and Labor shows that in 1905 the railway mileage of the world was 567,000. Allowing conservatively for subsequent increase, it is safe to say that it is now approximately 600,000, of which two-fifths, 225,000 miles, is in the United States.

By world grand divisions the distribution of mileage is: North America, 260,000 miles; Europe, 190,000 miles; Asia, 52,000 miles; Africa, 17,000 miles; Australia and Oceania, 17,500 miles; South America, 15,000 miles.

Of the practically 600,000 miles of railway in the world no more than 15 per cent, is within tropical and subtropical areas.

COKE PRODUCTION AND COAL REQUIRED.

The following table shows the coke production of the several States for the three years named and the amount of coal used for coke making:—

	Coal used—			Coke produced—		
	1906.	1907.	1908.	1906.	1907.	1908.
Alabama	5,184,597	4,973,296	3,875,791	3,034,501	3,021,794	2,362,666
Colorado**	2,566,196	2,288,961	1,546,044	1,455,905	1,421,579	982,291
Georgia	128,052	136,031	71,452	70,280	74,934	39,422
Illinois	362,163	814,983	503,359	268,693	372,697	362,182
Oklahoma	95,296	38,615	.....	49,782	19,089	.....
Kentucky	148,448	129,538	.....	74,064	67,068	.....
Montana	69,045	69,948	.....	38,182	49,714	.....
New Mexico	261,609	446,140	454,873	147,747	265,125	274,565
Ohio	437,567	376,759	237,448	293,994	270,634	159,578
Pennsylvania	34,503,513	39,733,177	23,215,964	23,060,511	26,513,214	15,511,634
Tennessee	929,405	825,221	395,936	483,428	467,499	214,528
Virginia	2,296,227	2,264,220	1,785,281	1,577,659	1,545,280	1,162,051
Washington	76,896	85,860	68,069	45,642	52,028	38,889
West Virginia	5,822,619	6,536,795	4,127,130	3,713,514	4,112,896	2,637,123
Other States*	2,864,741	3,427,115	3,155,100	2,087,315	2,538,013	2,286,092
Total	55,746,374	61,946,109	39,440,837	36,401,217	40,779,564	26,033,518

** Includes the production of Utah.

* Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, Wisconsin, Wyoming, Kansas, Missouri.

In some cases the coke credited to a State is not made from coal produced in that State. Thus, the ovens at South Chicago use coal brought from other States, none of the Illinois coal being suitable for coking. And of course this is true of Minnesota, Wisconsin and other States which produce no coal, but are credited with a coke output. The Massachusetts tonnage is made partially from Nova Scotia coal.

FREIGHT RATES ON COKE.

From the Connellsville region as quoted by railroads.

Akron, Ohio	\$1.50	Crestline	2.00	Montreal	3.73
Baltimore	2.15	Dayton	2.00	Muskegon, Mich.	2.65
Bay City, Mich.	2.65	Detroit	2.25	New York	2.85
Beaver Falls, Pa.	1.20	East St. Louis, Ill.	2.80	Oil City, Pa.	1.60
Belleville, Ill.	2.80	Emporium, Pa.	1.80	Peoria, Ill.	2.70
Boston	3.50	Erie, Pa.	1.65	Pittsburgh .....	.80
Buffalo	1.90	Evansville, Ind.	2.80	Richmond, Ind.	3.04
Cairo, Ill.	3.30	Ft. Wayne, Ind.	2.35	Richmond, Va.	2.95
Cairo, Ill., when destined		Greensburg, Ind.	\$2.35	Shawnee, Ohio	1.70
beyond	2.80	Harrisburg	1.80	Shenango, Pa.	1.50
Canal Dover, Ohio	1.45	Indianapolis, Ind.	2.35	Wheeling, W. Va.	1.30
Chicago, Ill.	2.65	Internat'l Bridge, N Y.	2.00	South Amboy, N. J.	2.35
Chillicothe, Ohio	2.00	Lackawanna, N Y.	1.90	Suspension Bridge, N.Y.	2.15
Cincinnati	2.10	Louisville	2.65	Terre Haute, Ind.	2.65
Cleveland	1.65	Mayville, Wis.	2.80		
Columbus	1.65	Milwaukee	2.75		

LEHIGH VALLEY COAL CO. TONNAGE.

The total production of anthracite coal from the lands owned and controlled by the Lehigh Valley Coal Co. and the minor companies in which it and the Lehigh Valley RR. Co. are interested, through ownership of stock, was 7,734,078 gross tons for the fiscal year ended June 30, 1909, as against 9,263,899 tons for the previous year, a decrease of 1,529,821 tons, or 16.51 per cent.

From the operations of the Snow Shoe property there were mined 288,457 gross tons of soft coal, as against 276,153 tons the previous year.

DANGERS OF MINING COAL.

In a recent Annual Report of James E. Roderick, Chief of Pennsylvania Department of Mines, it is said:

The mining of coal is a most dangerous vocation, the lives of the men engaged in it are always in jeopardy, and yet the exercise of care and judgment on the part of both employer and employe would eliminate much of the danger. It is true that the managers of the mines of Pennsylvania have adopted rather stringent rules in their efforts to safeguard the miners, and have spent large sums of money to make the mines safe. But the fact still remains that the chief object of the management is to produce the greatest amount of coal at the smallest cost.

The employes inside of the American mines are producing more coal per person than the employes of mines in any European country, and are also earning more money than the foreign employes. With all this strenuous effort, it may still be doubted whether the American employer of labor in the coal mines is earning any larger dividends on his investment than the European employer of similar labor. The question is, does this combined effort on the part of employer and employe to increase the production add to the perils that already surround this occupation? If so, it is time to call a halt on both employer and employe, and insist that they give greater attention to safeguarding the lives of the people in the mines.

The dangers cannot be entirely eliminated, but they can be lessened greatly if the common and well known precautions are taken. The roofs should be made secure, care should be taken in the handling of explosives, in dealing with gaseous mines, in running the mine cars, in operating the machinery of the hoisting shafts and the machinery in and about the breakers. Undoubtedly many accidents could be prevented if greater precautions were taken. From my experience of many years I am of the opinion that nothing but the strictest laws that will reach both employer and employe, with penalty clauses attached that can be enforced, will prevent the sacrifice of lives in the mines of Pennsylvania. There can be no good reason advanced why the American operator and the American miner cannot be made to observe the laws made for their mutual benefit and protection.

I would again suggest that a commission of experts be appointed to prepare a mining law that will be comprehensive enough to cover the needs of both the anthracite and bituminous mines. The law should carry with it the power to punish all violators of its provisions.

THE EARLY NAME OF SCRANTON.

The name of Slocum Hollow was appropriate for the hamlet formerly occupying the site of Scranton, for it was in a hollow, indeed. There are probably few other cities of corresponding size that are so enclosed. There are many places situated in a valley, with hills east and west, for one crosses many watersheds in traversing the continent, but there are few large places where the land rises to the south also and shuts off easy access or exit in that direction. Such is the location of Scranton, with its easiest avenue of outlet lying to the north, up the valley to Carbondale. It is true that the Lackawanna River flows in a southwesterly direction, towards Pittston, but it passes through a narrow defile, and with the railroad tracks that border it there is no room for a good road in that section.

OLD TIME NEW YORK WHOLESALERS.

The following list embraces the names of companies and individuals engaged in the wholesale coal business in New York in 1860, as shown by the city directory of that year:—

W. W. Arnfield	87 Wall St.	N. Y. & Lehigh Coal Co.....	111 Broadway.
John W. Andreas	16 Nassau St.	N. Y. & Richmond C. Co.....	13 William St.
American Coal Co. of Md.....	15 Nassau St.	Noble, Hemmett & Cauldwell.	111 Broadway.
Alfred Ashfield	21 William St.	Putnam Page	34 1-2 Pine St.
Lewis Audenreid & Co.....	110 Broadway.	Robert Paton	74 Broadway.
Chas. H. Bass	112 Broadway.	Pearson, Dans & Co.	39 William St.
M. Briggs & Co.	69 Wall St.	F. S. Perkins	40 Exchange Pl.
James Bagley	111 Broadway.	E. A. Packer & Co.	111 Broadway.
Belloni, Farrer & Co.	35 Pine St.	A. Pardee & Co.	169 Broadway.
Blakiston, Cox & Co.	4 New St.	Pennsylvania Coal Co.	90 Broadway.
Samuel Bonnelt, Jr.	53 Liberty St.	Rogers & Luther	16 Nassau St.
Orlow Brown	47 Exchange Pl.	W. Seward *	13 Wall St.
Louis Buckman	169 Broadway.	Samuel Seymour	74 Broadway.
Louis Belloni, Jr.	35 Pine St.	John Shay	11 Pine St.
N. D. Cortright & Co.	11 Pine St.	Stout, Van Wickle & Martin.	111 Broadway.
S. Castner	111 Broadway.	D. L. Suydam	11 Pine St.
W. Constable & Co.	11 Pine St.	Hamilton Shipman	167 Broadway.
Jerry Cowles	46 Exchange Pl.	James M. Simpson	4 New St.
Wm. Cowles	31 Nassau St.	W. H. Talmage	74 Wall St.
Cumberland C. & I. Co.	90 Broadway.	A. R. Thompson	41 Pine St.
R. C. Cutter	4 New St.	Taylor, Stone & Co.	169 Broadway.
Christian E. Detmold	111 Broadway.	Tonascotaik Coal Co.	24 William St.
D., L. & W. RR. Co.	51 Wall St.	Trevorton Coal & RR. Co....	111 Broadway.
Wm. Dodge's Sons	83 Wall St.	Van Dusen, Norton & Co....	53 Liberty St.
Percy Heilner	34 1-2 Pine St.	R. W. White & Bro.	101 Wall St.
Hartford Canal Co.	47 Exchange Pl.	Wyo. Valley RR. & C. Co....	29 Nassau St.
Chas. W. Hubbard	16 Nassau St.	G. E. West & Co.	54 William St.
Richard Kean	16 Nassau St.	A. J. Winterton	87 Wall St.
Keller & Baker	91 1-2 Wall St. and 31 Nassau St.	Samuel B. Young	4 Broad St.
Luzerne Coal Co.	35 Cortlandt St.	Young & Talmage	74 New St.
W. Mershon	95 Broadway.	F. & W. McQuade	122 Broadway.
Henry Meyer	160 Broadway.		

* Father of F. E. Seward.

DISTRIBUTION OF COAL MINED IN UNITED STATES.

Reported by the United States Geological Survey. All net tons.

Year.	Shipment.	Local.	At mines.	For coke.
1903.....	299,813,428	11,107,917	12,633,653	33,801,418
1904.....	296,578,615	11,145,213	13,230,090	31,356,509
1905.....	324,254,325	12,209,669	14,043,019	42,412,328
1906.....	341,526,755	11,640,238	14,833,984	46,156,301
1907.....	399,421,195	13,091,034	17,561,373	50,289,822
1908.....	354,551,092	11,862,885	17,200,377	32,228,344

While the Connellsville coke trade of 1909 started off in rather poor form, and hence made an average that was not all that could have been wished, the details for the latter months of the year are gratifying and those concerned in the manufacture and sale of Connellsville coke have much to encourage them as the business for 1910 develops. Naturally Connellsville sets the pace for other coke-making districts, and at the commencement of 1910 it appeared that those interested in the silvery fuel would have in the next few months many advantages to compensate them for the dismal experiences following the panic of 1907. It is thought that the average Connellsville price during the current year may be \$3 a ton.

MARKET FEATURES AT MOBILE.

As the largest seaboard city near the Alabama mines, Mobile has long been looked upon as a place possessing possibilities as a coal shipping port. Tonnage grows slowly, however. The fact that access by water can be had to the Warrior coal fields has often been mentioned as a feature, but the direct access by rail to the mines in the Birmingham district is by far the more important feature of the trade. Mobile has long been known as a center for the exportation of cotton, and of late years the shipments of lumber also have been important, bringing many foreign and domestic steamers to this port, as well as smaller craft for coastwise business. This has led to considerable bunker business being done at Mobile, and coal is also supplied to the steamers which bring bananas and other tropical products from Central America. With the completion of the Panama Canal it is believed that the ocean traffic of Mobile will be much increased, with consequent advantage to the coal trade.

The local steam and domestic trade is not heavy, climate generally being very mild, thus curtailing household use, and the sawmills naturally are not coal consumers. Setting aside railroad coal requirements, which are not included in our figures, business for the past year may be safely estimated as follows: Receipts by Louisville & Nashville, 80,000 tons; via Southern Ry., 105,000 tons; via Mobile & Ohio, 45,000 tons; total, 230,000 tons.

This shows a decrease from the preceding year of 10,000 tons, as the figures of 1908 were: Louisville & Nashville, 130,000 tons; Southern, 80,000 tons; Mobile & Ohio, 30,000 tons; a total of 240,000 tons. This is all coal from the Alabama mines. In addition to this there were last year four or five small barge loads floated down the Warrior River to Mobile, amounting in all to say 2,500 tons; and anthracite was received by vessel from Philadelphia and New York to the extent of 4,000 tons. Exports last year amounted to only 3,107 tons, but fully 90,000 tons was taken by foreign steamers, and over 100,000 tons were taken by coastwise vessels. No figures are available in regard to the coke business, but that is understood to have been very small.

The bunker business at Mobile would be larger than it is did not some of the British cotton steamers bring with them from England or Scotland coal enough to last the round trip or at least enough to supply them for a good portion of the return journey. It is also more or less of a custom with the cotton carriers sailing from Gulf ports to take a limited amount of southern or Pittsburgh coal and complete their requirements for the trans-Atlantic voyage at Hampton Roads. With the development of more business to Panama and the southward, this competitive feature would be lost sight of.

The B. T. U. system appears to have been stabbed in the house of its friends, as we note a recent paper by D. T. Randall, of the Little Laboratory, Boston, states that the results of more than 400 boiler tests at the Government Testing Plant show that the average drop in efficiency for a range of coals between 14,000 B. T. U. and 10,000 B. T. U. is only about six per cent. Theoretically, it would appear, the falling off should be nearly 30 per cent., and if Professor Randall's quotation is correctly reported, variation in B. T. U.'s really have only one-fifth of their reputed influence on fuel value. His view is that size, moisture, volatile and ash have an important bearing, as does loading or overloading, method of firing, etc.

GERMANY'S COAL OUTPUT.

The coal tonnage is divided into "stone" coal, corresponding to our bituminous, and lignite. The Empire is a large coal producer, as will be seen from the following:—

	Metric tons.	Metric tons.	
1904—Coal.....	120,694,098	1907—Coal.....	143,222,886
Lignite.....	48,500,222	Lignite.....	62,319,803
1905—Coal.....	121,190,249	1908—Coal.....	148,621,201
Lignite.....	52,473,525	Lignite.....	66,450,144
1906—Coal.....	136,479,885	1909—Coal.....	149,329,172
Lignite.....	56,235,189	Lignite.....	68,097,780

Coke made in 1904 was 12,331,163 tons, and briquettes, 11,413,497 tons. In 1905, 16,358,334 tons coke, and 13,000,000 tons briquettes. In 1906, 20,260,000 tons of coke, and 14,500,000 tons of briquettes. In 1907, 21,938,038 tons of coke, and 16,414,478 tons of briquettes. In 1908, 21,174,956 tons of coke, and 18,222,667 tons of briquettes. In 1909, 21,407,681 tons of coke, and 18,750,827 tons of briquettes.

CHESAPEAKE & OHIO FINANCIAL RESULTS.

Earnings and expenses in detail for the past four fiscal years (ending June 30th) follow:—

	1905.	1906.	1907.	1908.	1909.
Gross earnings.					
Freight	\$16,039,313	\$19,395,648	\$19,974,860	\$19,571,609	\$20,885,511
Passenger	3,894,145	4,242,556	4,888,139	5,120,528	4,482,004
Mail	297,410	339,721	385,103	395,714	388,453
Express	393,529	423,087	416,553	407,976	407,574
Miscellaneous	99,974	201,976	132,203	219,357	342,672
Total	20,724,371	24,602,988	25,796,860	25,843,272	26,630,717
Operating expenses.					
Maint. of way.....	2,188,835	2,649,557	3,090,037	3,135,354	3,101,150
Maint. of equipment....	4,077,943	4,469,590	4,721,345	5,369,463	4,938,938
Cond. transp.	6,677,254	7,394,111	8,437,507	8,241,713	7,794,725
General	306,934	356,391	401,415	440,215	532,023
Total	13,250,966	14,869,949	16,650,306	17,186,747	16,366,837

COKE MAKING DISTRICTS IN PENNSYLVANIA.

The United States Geological Survey presents the following resume of the production by districts, in net tons, during the years 1907 and 1908:—

District.	Coal used		Coke produced		Yield coal in coke	
	1907.	1908.	1907.	1908.	1907.	1908
Allegheny Mountain ..	1,753,002	1,208,221	1,209,592	859,648	69.0	71.1
Broad Top	1,547,741	198,798	1,154,874	125,722	74.6	63.2
Clearfield-Center-Eik* ..	115,388	.....	74,187	.....	64.3	.....
CConnellsville	19,751,739	10,238,665	13,089,427	6,880,951	66.3	67.2
Greensburg	1,206,981	1,119,391	798,003	694,032	66.1	62.0
Irwin*	315,601	.....	210,383	.....	66.7	.....
Lower Connellsville ...	9,150,693	6,156,553	6,310,900	4,252,222	69.0	69.1
Pittsburgh	2,807,931	1,742,119	1,764,747	1,103,413	62.9	63.8
Reynoldsville-Walston ..	1,526,123	1,198,938	870,831	655,312	57.1	54.7
Upper Connellsville ...	1,557,978	779,463	1,030,260	514,526	66.1	66.0
Total	39,733,177	23,215,964	26,513,214	15,511,634	66.7	66.8
Other districts .....	.....	573,811	.....	426,809	.....	74.0

* Included in other districts.

KINDS OF COAL PRODUCED IN THE U. S.

The coal produced in the United States is reported by the United States Geological Survey as consisting of two classes—anthracite and bituminous. The bituminous product includes coal that may be classed as semi-anthracite, semi-bituminous, cannel, block, splint, and lignite, or sub-bituminous.

In addition to the anthracite produced in Pennsylvania, a small amount is mined in New Mexico, and still less in Colorado.

Semi-anthracite is reported from Pennsylvania, Oklahoma, Virginia and Arkansas.

Bituminous coal is produced in 27 States and Territories, and forms by far the largest part of the total coal production.

Semi-bituminous coal is mined in 16 States and Territories, with West Virginia first, followed in order by Maryland, Pennsylvania, Montana, Colorado, Wyoming, Washington, Oklahoma, and Kentucky.

Colorado leads in the production of lignite or sub-bituminous coals. The so-called black lignites of the Rocky Mountain States are entirely distinct from the real lignites, or brown coals. They are not lignites in chemical composition, in color, or in physical characteristics and as they lie between the lignites or brown coals, and the true bituminous coals, the term sub-bituminous has been adopted by the United States Geological Survey to designate them. In the production of this variety of coal, Colorado leads, Wyoming is second, and New Mexico is third. A part of the product of California and Oregon should also be included under this head.

The principal producers of true lignite, or brown coal, are Texas and North Dakota.

A comparatively small production of cannel coal was obtained from a few States, of which Kentucky, West Virginia and Indiana are the principal ones. West Virginia is also credited with nearly all the splint coal production, while Indiana is the leading producer of block coal.

INCREASED TONNAGE MOVEMENT ON PENNSYLVANIA RR.

During the year 1909 the Pennsylvania RR., in the matter of bituminous traffic, recovered about one-half the ground lost in 1908 as a result of the business depression. The 1908 tonnage showed a loss of 14.4 per cent. as compared with 1907, when the movement of soft coal over the road attained its greatest proportions. While an exact comparison between 1908 and 1909 is not feasible, owing to a change made near the end of last year in the method of preparing tonnage statements, it is possible to carry the comparison up to the end of October. The soft coal tonnage carried by the company on its lines east of Pittsburgh in the first ten months of 1909 was 9.5 per cent. larger than in the corresponding period of 1908. Or to put it another way, the 1909 tonnage to the end of October was 7.4 per cent. behind that of 1907, as compared with a loss of 14.4 per cent. for the whole of 1908, so that up to the first of last November the company had regained about half of its loss. It is not probable that the last two months of the year made any particular change in the status of affairs.

The favorable conditions affecting tonnage movement in the first few weeks of 1910 indicated quite clearly that the tonnage for the current year would be up to that of 1907, and should good conditions continue throughout the year, possibly the record figures of the banner year will be exceeded in the year ending December 31, 1910.

ANALYSES OF AMERICAN BITUMINOUS COAL.

Among the interesting features connected with the Paris Exposition of 1900 was an exhibit of American coals gathered under instructions from the U. S. Commissioner General by F. E. Saward, as Honorary Special Agent. The analyses thereof were obtained, as this forms a point of great value to the student of the quality of coal and in view of continued interest in the matter we now reprint the figures originally appearing in our Annual for 1900:—

Name.	Fixed carbon.	Volatile matter.	Moisture.	Ash.
ALABAMA:				
Blockton	58.91	37.13	1.34	2.62
Patton	51.93	40.59	1.35	6.13
Pratt City	61.94	33.03	1.49	3.54
Pratt City (coke).....	92.79	.68	.41	6.12
ARKANSAS:				
Bonanza	76.26	12.75	.39	10.60
Deming	78.26	12.15	.92	7.09
Huntington	77.83	15.21	1.33	6.96
Jenny Lind	76.73	13.64	.94	7.12
COLORADO:				
Crested Butte	61.26	31.80	.92	6.02
Fremont	58.40	29.95	7.00	4.65
Las Animas	58.40	32.18	.52	8.90
Pictou	47.88	46.47	1.60	4.05
Chandler	53.72	42.40	.68	3.20
Maitland	48.50	38.12	3.10	10.20
Hastings	53.10	36.40	1.26	9.24
Gray Creek	54.10	36.40	.50	9.00
Hastings (coke)	82.85	.05	.55	16.55
Gray Creek (coke)	80.70	1.30	.70	17.30
ILLINOIS:				
Coal City	55.88	29.98	9.87	2.62
Dunfermline	43.25	40.44	6.65	9.66
Mt. Olive	44.59	35.93	8.55	7.71
Trenton	46.90	36.75	8.00	7.35
Troy	45.68	39.51	8.67	5.50
INDIANA:				
Neckland	46.45	41.88	6.49	5.18
IOWA:				
Centerville	42.90	40.49	8.70	*5.05
Cleveland	40.06	42.75	7.58	9.61
Pekay	37.79	47.11	6.60	8.50
*Sulphur, 2.88.				
KANSAS:				
Leavenworth	47.41	39.21	2.69	10.69
Weir City	52.69	36.69	2.21	8.41
Weir City	52.70	35.00	1.40	*8.90
Fleming	56.32	28.70	3.08	7.98
*Sulphur, 2.00.				

Name.	Fixed carbon.	Volatile matter.	Moisture.	Ash.
KENTUCKY:				
Earlington	55.45	35.00	6.45	3.10
Earlington	55.925	34.825	5.55	3.70
Halsey	60.300	35.125	2.475	2.10
Halsey	61.075	34.125	2.800	2.00
Halsey	56.075	39.125	1.300	3.50
Halsey	67.000	30.025	1.575	1.40
Halsey	63.255	32.150	3.115	1.48
MARYLAND:				
Cumberland	72.99	19.58	.75	6.68
Frostburg	74.58	19.56	.37	5.49
MICHIGAN:				
Saginaw	63.78	31.39	Slight.	*3.79
*Sulphur, 1.04.				
MISSOURI:				
Glen Oak	47.02	29.43	10.76	9.59
Panama	41.14	42.62	2.54	13.70
Rich Hill	48.68	30.91	4.44	11.74
MONTANA:				
Belt	53.15	36.30	3.10	*7.45
Belt	42.60	35.20	3.25	18.95
Belt (coke)	87.23	.95	.34	11.48
*Sulphur, 2.774.				
OHIO:				
Jackson	63.50	29.75	5.25	1.50
Massillon	51.76	42.04	4.30	1.90
Perry	48.00	39.10	5.40	7.50
Steubenville	56.07	38.54	1.73	*2.90
Wellston	54.97	35.72	7.46	†1.17
*Sulphur, .76. †Sulphur, .68.				
OKLAHOMA:				
Hartshorne	55.27	37.79	2.47	*3.50
Krebs	62.82	29.79	2.18	4.54
Lehigh	49.09	31.36	4.68	10.86
Coalgate	45.25	44.75	2.30	5.70
Krebs (coke)	87.57	1.37	.63	9.41
*Sulphur, .950.				
PENNSYLVANIA:				
Avonmore	57.43	35.04	.72	6.81
Connellsville district ...	60.06	31.72	....	7.10
Connellsville coke	86.39	2.11	....	10.44
DeLancey	62.10	33.44	1.36	3.10
Dudley	75.67	18.14	1.09	5.10
Eleanora	61.66	34.90	1.10	2.34
Glen Maclaren	73.75	19.63	.90	5.72
Listie	77.00	16.78	1.09	*4.51
London	62.80	32.06	.94	4.20
Long Valley	73.257	16.66	.88	†8.56

Name.	Fixed carbon.	Volatile matter.	Moisture.	Ash.
Morrisdale	72.00	22.00	1.00	5.00
Morris Run	73.54	17.44	.50	8.00
New Bethlehem	56.55	39.21	.93	2.42
Patton	93.908	.....	2.282	‡3.484
Uniontown	60.420	29.815	1.130	7.949
Walston	62.16	32.04	.46	5.34
Washington	58.04	35.50	1.50	4.96
Woodvale	77.15	14.30	1.58	6.97
Elk Lick	74.870	16.815	0.995	7.320
Soldier Run	63.20	3.11	.80	4.90
Morrisdale (coke)	90.00	.....	.85	9.15
Uniontown (coke)	89.509	.88	.07	9.541
Soldier Run (coke)	87.66	.86	.16	11.12

*Sulphur, .62. †Sulphur, .648. ‡Sulphur, .326.

TENNESSEE:

Coal Creek	57.84	38.91	.85	*2.40
Coal Creek	57.82	37.82	.99	‡2.67
Jellico	64.00	33.00	1.00	2.00

*Sulphur, .78. †Sulphur, .78.

UTAH:

Castle Gate	52.42	41.95	2.61	3.02
Scofield	51.80	39.60	6.50	2.10

VIRGINIA:

Coalbrook	67.14	24.64	.79	6.11
Gayton	79.38	9.65	.78	10.19

WASHINGTON:

Roslyn	59.71	31.20	1.33	6.80
Wilkeson	66.74	28.86	2.80	1.60

WEST VIRGINIA:

Acme	55.08	39.50	1.47	3.95
Ansted	64.70	30.70	1.40	*3.20
Coketon	72.12	20.43	.52	6.93
Elk Garden	76.10	19.31	.33	4.26
Falling Rock	35.75	54.89	.36	7.69
Flemington	54.361	40.112	1.024	‡3.175
Nuttallburg	70.67	25.35	.....	\$2.10
Pocahontas	77.48	19.85	.47	2.19
Thacker	65.05	31.67	.68	2.60
Thomas	73.57	19.98	.48	5.97
Tunnelton	65.69	23.97	1.45	8.89
Wheeling	45.24	44.43	.....	5.14
Ansted (coke)	89.10	.40	1.00	†9.50
Nuttallburg (coke)	93.00	.....	.....	6.76
Powellton (coke)	91.048	.661	.117	7.548

*Sulphur, .312. †Sulphur, .417. ‡Sulphur, 1.328. §Sulphur, .570.

WYOMING:

Kemmerer	53.61	39.60	3.00	3.19
Rock Springs	49.58	43.00	4.35	3.07

TRADE AT BALTIMORE, 1909.

As might be expected, the three coal carriers of this market report very large increases in the coal tonnage during the past year. While the figures of the Northern Central R.R. are not available, those of the Western Maryland and the Baltimore & Ohio roads tell the story of business revival as indicated by the vastly larger amounts of fuel carried during the year 1909. As is well known, the year preceding was the dulllest the trade had known for years. The effects of the panic were felt keenly by the coal producers and their shipments were greatly reduced as compared with 1907.

Month by month the tonnage on the B. & O. increased during 1909. Occasionally there would develop a decrease for a 30-day period as compared with that just preceding it, but these were due to seasons and other natural causes rather than to dullness in the trade. For instance February was a weaker month than January and it was not until May that the tonnage reached the high mark set by the initial month. From then until September there was a steady increase in the coal movement, though October developed a shortage and November and December were less than September.

The anthracite movement varied greatly during the year. The summer months were naturally dull, but toward the end of the year the B. & O. tonnage of this class of fuel grew constantly. The coke shipments were fully 30 per cent. larger in October than they were at the opening of the year, reaching their highest mark in October. The following are the official figures for the year 1909 as issued from the president's office:

Month.	Bit.	Anth.	Coke.	Month.	Bit.	Anth.	Coke.
Jan.	1,666,537	90,099	353,592	Aug. ...	2,213,279	44,686	431,096
Feb.	1,452,081	73,725	307,500	Sept. ...	2,293,004	62,308	428,988
Mar.	1,661,773	78,425	329,470	Oct.	2,185,559	102,260	453,304
April ...	1,653,659	80,210	312,311	Nov. ...	2,224,289	118,356	442,127
May ...	1,848,397	57,035	329,711	Dec.	2,146,097	99,242	396,386
June ...	1,877,588	39,430	401,304	Total.	23,302,161	882,597	4,602,611
July	2,079,898	36,821	416,822				

A digest of the Western Maryland Ry. tonnage for the year shows an increase of 354,817 tons as compared with 1908, or more than ten per cent., and an increase of 71,448 tons of coke, or more than 50 per cent. over the preceding year. These figures represent, however, only the Davis C. & C. Co's tonnage. There was delivered to this road about 600,000 tons of coal by the independent operators on the Western Maryland and some small shipments from the C. & P. and the B. & O. at the various junction points.

During November the coal tonnage of this road reached the highest mark in the history of the property when a little more than 200,000 tons were hauled. The year closed slightly under its opening and slightly under the close of 1908, but taking the whole for the year the business was the best ever done by the Western Maryland and its subsidiary, the Davis C. & C. Co.

The coke increase was the most notable on the Western Maryland, particularly during the early months. In October, when the boom was on, heavy shipments of this product were made, but December found a depression in the market and the year closed under the close of the year before.

The following figures were issued by the Western Maryland:

Month.	Coal		Coke	
	1909.	1908.	1909.	1908.
January	182,107	116,650	18,696	7,759
February	152,399	121,663	10,601	5,634
March	185,944	111,520	11,774	3,736
April	160,389	146,953	11,752	4,960
May	154,493	96,623	11,247	4,752
June	135,578	108,477	12,237	5,001
July	163,803	135,078	10,506	4,376
August	140,239	132,422	8,274	7,247
September	179,518	144,305	17,668	9,386
October	194,049	197,046	23,184	13,178
November	200,582	178,722	22,945	17,577
December	177,127	181,952	17,322	21,152
Total	2,026,228	1,671,411	176,206	104,758

The coal trade situation is described here by the Northern Central officials only in a general way. They say that both their bituminous and anthracite movement has been greatly increased by the better business conditions during 1909, but they produce no figures to indicate definitely the amount of fuel hauled to the Canton piers, or to the local consumers. Shippers too, who receive coal over the Northern Central, insist that 1909 far outstripped 1908.

All the larger operators who sell through the Baltimore market authorized the statement that the year had been all that could be hoped for in so far as the demand was concerned. Many of them complained that the car shortage prevented the delivery of much coal which might otherwise have been marketed, but they agree that there was some compensation even in the lack of equipment on the railroads, as the condition thus produced had the effect of raising the prices to a higher level.

FREIGHT RATES ON COAL FROM VARIOUS DISTRICTS.

From Pittsburgh: To Shenango and Mahoning Valleys, 70 cents; Buffalo, \$1.25; Cleveland, commercial, \$1.00; bunker, 98 cents; cargo, 88 cents. Rates to Erie and Ashtabula are the same on the classifications. To Philadelphia, in gross tons, \$1.85; to New York, gross tons, \$2.20. To Detroit, \$1.40; Chicago, \$1.90; local to Pittsburgh delivery point from 35 to 48 cents.

From eastern Ohio to: Cleveland, commercial, 90 cents; cargo, 85 cents; Chicago, \$1.65; Detroit, \$1.15; Ashtabula, commercial, 90 cents; cargo, 85 cents.

From Hocking Valley to: Toledo, commercial, 90 cents; cargo, 85 cents.

From West Virginia districts: Fairmont, to Chicago, in net tons, \$1.90; Seaboard points, \$1.80; Lorain, cargo, 97¾ cents; bunker, \$1.07¾ (gross tons).

Kanawha district: to Chicago, \$1.90; Detroit, \$1.40; Toledo, cargo, 97 cents; bunker, \$1.07.

New River and Pocahontas districts: Thurmond to Newport News, \$1.40; Bluefield to Norfolk, \$1.40; Princeton to Norfolk, \$1.40; Dickenson and Handley to Toledo, 97 cents; Thurmond to Toledo, \$1.12; Handley to Cincinnati, \$1.00; Thurmond to Cincinnati, \$1.10; Handley to Chicago, \$1.90; Thurmond to Chicago, \$2.00.

DESTINATION OF BRITISH EXPORTS OF COAL.

Countries.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Russia	2,878,890	2,863,689	3,414,103	3,330,890
Sweden	3,573,505	3,709,322	4,370,468	3,965,824
Norway	1,494,956	1,606,109	1,940,913	1,896,292
Denmark	2,514,133	2,814,509	2,810,754	2,864,891
Germany	7,629,653	10,107,877	9,646,868	9,671,992
Netherlands	2,255,566	3,791,597	2,160,314	2,320,450
Belgium	1,427,728	1,526,411	1,751,251	1,644,951
France	9,444,538	10,694,136	10,415,430	10,408,010
Portugal, Azores, &c.....	1,022,807	1,149,218	1,094,723	1,139,158
Spain and Canaries.....	2,682,683	2,544,466	2,537,331	2,610,256
Italy	7,810,024	8,317,637	8,742,634	9,081,667
Greece	462,545	446,827	472,069	478,910
Turkey	461,269	507,401	483,777	493,176
Egypt	2,604,198	2,929,442	2,495,563	2,606,170
Algeria	738,828	960,910	863,694	865,533
United States	56,179	47,215	14,214	22,535
Chile	496,863	712,901	557,563	789,785
Brazil	1,158,293	1,304,102	1,301,150	1,291,565
Uruguay	647,115	841,679	974,835	951,566
Argentine Republic	2,382,897	2,192,198	2,416,645	2,421,280
Gibraltar	354,387	287,404	220,991	228,666
Malta	391,185	386,029	445,011	372,797
British South Africa	197,486	107,405	85,279	78,805
British India	210,411	197,176	179,334	322,306
Straits Settlements	100,591	64,046	61,842	38,794
Ceylon	322,636	269,218	252,525	266,013
Other countries	2,280,410	3,312,023	2,837,894	2,914,517
Divided as to quality as below:—				
Anthracite	1,856,313	2,127,903	2,274,792	2,535,903
Steam	41,601,302	46,729,785	45,129,194	45,227,859
Gas	8,392,192	10,445,091	10,541,658	10,684,018
Household	1,427,706	1,510,134	1,558,320	1,605,066
Other sorts	2,322,258	2,788,034	3,043,211	3,023,953
Total	56,599,771	63,600,947	62,547,175	63,076,799
Coke	815,224	981,418	1,193,036	1,161,026
Patent fuel	1,377,209	1,480,893	1,440,438	1,455,842
Total (all fuels).....	57,792,204	66,063,258	65,180,649	65,694,267
Coal, etc., for use of steamers.....	18,590,213	18,618,828	19,474,174	19,713,907

A WAY TO FIGURE COAL REQUIREMENTS.

In order to determine the amount of coal required to haul a freight train from Harrisburg to Altoona, and to decide whether it is more economical to make up a long train or a short one, the officials of the Pennsylvania RR. last year inaugurated a system of keeping account of the coal consumed. When the engine started west a certain amount of coal in bags of 100 pounds each was taken on, instead of filling the tender as usual. A record of this weight was taken and the average was then figured out by the number of cars on the train. By gradually increasing the number of cars the pulling power of a specified amount of coal was obtained.

USE OF ANTHRACITE DOES GROW.

A statement has been published relative to the per capita consumption of anthracite coal, and taking the increase in population the country over it has been pointed out that anthracite has not held its own in the past several years. As a matter of fact, if we restrict consideration to anthracite territory a different tale is told. In 1870 the population of the New England States, New York, New Jersey, one-half of Pennsylvania, Delaware and Maryland aggregated something over 11,000,000 and the anthracite tonnage was something over 16,000,000 tons. In 1910 the population of the same territory is approximately 22,000,000, and for this year it is entirely safe to calculate on 64,000,000 gross tons of anthracite being shipped, so that while there has been a 100 per cent. increase in population, there has been a 300 per cent. increase in anthracite shipments.

The 1890 figures show a result practically midway both with regard to population and tonnage.

The tonnages of the outlying districts, exports, etc., aggregate only a small percentage of the whole, so that it is entirely safe to say that in its home territory anthracite has not only held its own, but has shown a very favorable degree of increase when one considers the manifold circumstances with which it has had to contend—the fact that it is a high-priced fuel compared with bituminous, that the use of gas as fuel has made wonderful developments, and various matters of that sort.

In fact, the steadiness and regularity of its growth is remarkable.

STANDARD SIZES OF ANTHRACITE.

Broken—through a mesh four inches square and over a mesh $2\frac{3}{4}$ inches square.

Egg—through a mesh $2\frac{3}{4}$ inches square and over a mesh two inches square.

Stove—through a mesh two inches square and over a mesh $1\frac{3}{8}$ inches square.

Chestnut—through a mesh $1\frac{3}{8}$ inches square and over a mesh $\frac{3}{4}$ -inch square.

Pea—through a mesh $\frac{3}{4}$ -inch square and over a mesh $\frac{1}{2}$ -inch square.

Buckwheat No. 1.—through a mesh $\frac{1}{2}$ -inch square and over a mesh $\frac{1}{4}$ -inch square.

Buckwheat No. 2 or rice—through a mesh $\frac{1}{4}$ -inch square and over a mesh $\frac{1}{8}$ -inch square.

The amount of unconsumed carbon in the heavy black smoke emitted by locomotives running at high speed with heavy loads is frequently commented upon. But is it really such a considerable factor as imagination depicts? The smoke looks mighty black, but after it rolls away, how much solid substance has been precipitated on or near the roadbed? Notice how long it takes for a new embankment to become discolored with the signs of traffic. It must be that the black smoke clouds are like some of the dark troubles in the affairs of life; after a sufficient time has elapsed we learn from the actual results, the precipitation of solid substance, so to speak, that the affair was not nearly so heavy with evil potentialities as at first appeared.

ANTHRACITE MINERS' WAGE SCALE.

The operation of the sliding scale for miners' wages, as established by the Anthracite Strike Commission, from January 1, 1905, to and including December 31, 1909, brought the following result:—

	1905		1906		1907		1908		1909	
	Av. price per ton	% incr. in wages	Av. price per ton	% incr. in wages	Av. price per ton	% incr. in wages	Av. price per ton	% incr. in wages	Av. price per ton	% incr. in wages
January	\$4.83	0	\$4.77	5	\$4.81	0	\$4.81	0	\$4.85	7
February	4.84	6	4.78	5	4.82	6	4.84	6	4.82	6
March	4.76	5	4.81	6	4.75	5	4.71	4	4.76	5
April	4.44	0	4.93	8	4.43	0	4.44	0	4.76	5
May	4.50	0	4.53	0	4.50	0	4.50	0	4.44	0
June	4.58	1	4.57	1	4.57	1	4.56	1	4.55	1
July	4.64	2	4.63	2	4.61	2	4.63	2	4.62	2
August	4.71	4	4.68	3	4.67	3	4.69	3	4.68	3
September	4.76	5	4.74	4	4.77	5	4.80	6	4.76	5
October	4.82	6	4.85	7	4.84	6	4.83	6	4.85	7
November	4.84	6	4.84	6	4.83	6	4.83	6	4.84	6
December	4.82	6	4.84	6	4.81	6	4.86	7	4.86	7

PENNSYLVANIA RAILROAD FINANCIAL REPORT.

The income account of the lines east of Pittsburgh is as follows:—

	1905.	1906.	1907.	1908.	1909.
Gross receipts	\$133,921,992	\$148,239,882	\$164,812,825	\$136,296,871	\$153,564,527
Expenses	93,390,410	101,805,644	123,568,512	101,400,992	111,903,160
Net	40,531,582	46,434,238	41,226,313	34,895,878	41,661,367
Rentals	7,662,810	7,300,899	4,877,065	2,706,685	4,182,035
Balance	32,868,771	39,133,338	36,349,247	32,189,192	37,479,331
Other income	12,036,917	12,784,262	13,794,106	14,388,702	15,951,432
Total income	44,905,689	51,917,601	50,143,354	46,577,895	53,430,764
Int., charges, etc.	14,803,172	16,243,300	16,568,297	18,370,234	18,271,676
Net income	30,102,516	35,674,300	33,575,056	28,207,660	35,159,087
Extra expenses	11,988,538	13,304,640	9,316,196	8,672,848	13,534,942
Balance	24,725,484	22,369,660	24,259,859	19,524,811	21,624,145
Dividend	18,113,977	19,869,660	21,908,435	18,875,680	19,173,742

Fifty years ago the Schuylkill region turned out 3,000,000 tons of coal, and nearly one-half of this output was shipped by canal, the railroad tonnage exceeding the canal tonnage by less than 300,000 tons. In the Lehigh region the total was about half as great as in the Schuylkill, and the canals did twice as much business as the railroad, only one line then penetrating the section. There was also some canal business in the Wyoming region, 400,000 tons being shipped down the Wyoming Canal, while of course the D. & H. Canal received via gravity railroad a tonnage almost as big as that of any producer.

ACCIDENTS FOLLOW INCREASED USE OF POWDER.

As accounting for an enlarged number of accidents in mines in recent years, it is noteworthy that, whereas the average amount of coal mined in Pennsylvania per pound of explosive in 1892 was 17.27 tons, it declined to 12.65 in 1897, 9.90 in 1902, 7.37 in 1907 and 7.70 in 1908.

The use of dynamite in blasting accounts in large part for both the average declension of tonnage and for the large number of accidents. This is one of the facts that lies behind the recent order of the Chief of the Mining Department forbidding the use of dynamite and black-powder in gaseous mines, of which there are 334 classified, and 967 non-gaseous. However, there is a new classification now in progress. There is a stirring-up by the inspectors among foremen as to insisting on better timbering in mines. It is shown that 56.46 per centum of all mine accidents in the year last named were from falls of roof and coal—a number that is evidence of carelessness, and which can be and should be reduced.

It is also shown, contrary to general opinion, that there was a relatively larger number of such accidents suffered by natives, so that the number is not due to ignorance on the part of non-natives, as is commonly declared. It is just as well to give the "foreigner" a chance once in a while.

SHIPMENTS FROM CUYAHOGA CUSTOMS DISTRICT.

Shipments from ports in the Cuyahoga Customs district, Ohio, during the navigation season of 1907, were as follows:—Cleveland, 3,264,875; Conneaut, 1,109,086; Ashtabula, 2,947,753; Fairport, 395,794; Lorain, 2,076,618; total, 9,794,126; all bituminous, gross tons.

For 1908.—Cleveland, 2,952,900; Conneaut, 320,530; Ashtabula, 1,864,580; Fairport, 397,686; Lorain, 1,827,922; total, 7,363,618; all bituminous, gross tons.

For 1909.—Cleveland, 2,397,145; Conneaut, 463,383; Ashtabula, 2,684,521; Fairport, 515,695; Lorain, 1,659,146; total, 7,709,908; all bituminous, gross tons.

Above returns do not include vessel fuel, as do those on another page.

The bunker coal supplied during 1909 and not included above, was as follows:—Cleveland, 406,302; Conneaut, 205,753; Ashtabula, 271,218; Fairport, 57,258; Lorain, 245,108. These figures were reported by dealers doing a fueling business at these ports.

During the year 1909 the exports of bituminous coal from the Cuyahoga Customs district were 3,000,545 tons.

FOUR ESSENTIALS OF GOOD FOUNDRY COKE.

1. Hardness of body; strength of cell wall, not density.
2. Fully developed cell structure; the calorific energy of coke increases with increase of cellular space.
3. Purity; carbon, between 86.5 per cent. and 91 per cent.; ash, not less than nine per cent. and not more than 12 per cent.; sulphur, as low as possible and not more than one per cent.; phosphorus, the lower the better.
4. Uniform quality exacts hard burnt, bright, clean, porous lumps, and excludes "black butt ends," "jambs," "fronts" and "slaty ashes"—"spongy coke."

MILWAUKEE, WIS.

Receipts of coal by water at Milwaukee, Wis., have been as below:—

Season.	Anthracite.	Bituminous.	Total.
1904	864,655	1,847,670	2,712,325
1905	800,933	2,018,908	2,819,841
1906	745,236	2,557,661	3,302,897
1907	188,869	3,227,050	4,108,919
1908	1,076,812	2,584,355	3,661,167
1909	816,936	2,995,939	3,812,875

Rail receipts, say 353,948 tons of bituminous additional last year.

The following details of the business at this city for the years 1905 to 1909 inclusive show its importance in the coal trade:—

Coal Received.	SIZE OF CARGOES.				
	1905.	1906.	1907.	1908.	1909.
Cargoes over 10,000 tons.....		2	31	53	78
Cargoes between 9,000 and 10,000 tons...	1	24	35	53	55
Cargoes between 8,000 and 9,000 tons...	3	14	16	31	32
Cargoes between 7,000 and 8,000 tons...	21	39	93	74	84
Cargoes between 6,000 and 7,000 tons...	53	89	82	37	77
Cargoes between 5,000 and 6,000 tons...	36	57	74	58	56
Cargoes between 4,000 and 5,000 tons...	65	64	72	51	50
Cargoes between 3,000 and 4,000 tons...	217	188	190	188	97
Cargoes between 2,000 and 3,000 tons...	352	312	217	147	75
Cargoes between 1,000 and 2,000 tons...	113	68	42	11	14
Cargoes less than 1,000 tons.....	12	4	2	2	2
Cargoes received	873	861	854	685	620
Average (tons)	3,498	3,877	4,080	5,300	6,152

SHIPMENTS AND STORAGE CAPACITY.

Shipped from Milwaukee docks (cars) ..	40,000	48,858	53,893	43,259	44,072			
Storage capacity Milwaukee coal docks	<table border="0"> <tr> <td rowspan="2" style="font-size: 2em; vertical-align: middle;">}</td> <td>600,000 tons anthracite.</td> </tr> <tr> <td>1,800,000 tons bituminous.</td> </tr> </table>					}	600,000 tons anthracite.	1,800,000 tons bituminous.
}	600,000 tons anthracite.							
	1,800,000 tons bituminous.							
Total	2,400,000 tons.							

Data compiled by the Milwaukee-Western Fuel Co.

The increased number of big boats arriving at this port is a very notable feature of the trade. Largest cargo ever received in Milwaukee, SS. L. S. De Graff (1909), 12,885 tons.

It will be noted that there were 78 cargoes of 10,000 tons or over received at Milwaukee last year, as compared with two in 1906 and none in the preceding year. This is certainly an interesting indication of the growth of large units in the trade.

IMPORTS OF COAL INTO HAMBURG, GERMANY.

The total imports into Hamburg during the years 1907, 1908 and 1909 have been as follows:—

Source of Supply.	Tons 1907.	Tons 1908.	Tons 1909.
From Northumberland and Durham...	2,553,031	2,940,985	3,096,972
“ Yorkshire, Derbyshire, etc.....	934,182	663,979	673,392
“ Scotland	1,379,368	1,262,394	1,985,110
“ Wales	129,533	126,523	119,621
Coke.....	23,749	21,629	13,871
Total	5,019,863	5,015,510	5,283,966

PROVIDENCE, R. I.

A large coal-consuming center in itself, Providence is also the port of arrival of an important tonnage for use in the numerous manufacturing towns in southeastern New England. It is situated on the Providence River, which at that point is an estuary of Narragansett Bay. In recent years the channel has been deepened and the harbor enlarged by dredging, while there have also been improvements made in the coal-handling facilities. There is now a stretch of the river some 300 feet wide which has 25 feet of water at low tide.

Providence is one of the principal manufacturing cities of New England. Its industries include about 100 cotton mills and 85 woolen mills, as well as a considerable number of miscellaneous mills and factories. The local plants and the domestic trade take approximately one-third of the tonnage received by water, the balance being forwarded by rail to points within a radius of 50 miles or so. Receipts in 1909 aggregated 2,224,042 tons of anthracite and bituminous, as against 1,733,337 tons in 1908, an increase of 490,705 tons.

Water-front coal yards are found on both banks of the Providence River. On the east side are the pockets of the Robert E. Smith Co., with storage room for upwards of 9,000 tons. On the opposite side of the river the Seaconnet Coal Co. has a plant which is designed to store about 50,000 tons, and is equipped with handling facilities of modern pattern. A little further up the river is the yard of Curran & Burton, which contains pockets with storage capacity of some 25,000 tons. This, too, is an up-to-date establishment as regards equipment. The John R. White Co. has several yards on the Providence and Seekonk Rivers. The Eastern Coal Co's. water-front yard is at the head of the Providence River and receives a large tonnage of coal yearly.

PENSACOLA, FLORIDA.

By reason of its geographical location and good harbor, Pensacola is a convenient coaling point for steamers touching at Gulf ports, and boats of a number of lines stop there regularly to fill their bunkers. Situated within 200 miles or so of the Alabama coal fields, a supply of fairly good coal is available at an attractive price, and the large dock of the Louisville and Nashville RR. affords excellent facilities for handling bunker and export tonnage. The building of the Muscogee dock, as it is known locally, was followed by a steady growth in the coal business of the port, until now it amounts to upwards of 100,000 tons annually. The dock in question is 2,440 feet long and 120 feet wide at the sea end. There is 28 feet of water alongside for most of its length, and it can accommodate the largest steamers engaged in the Gulf trade.

The export and bunkering business amounted to 113,583 tons in 1909, as compared with 96,391 tons in 1908. The bulk of this tonnage was put in the bunkers of steamers engaged in the foreign trade. This branch of the business is growing, while the exports have shown little or no growth in recent years. Of the tonnage trans-shipped last year, 71,507 tons was supplied to foreign steamers for bunker purposes and 11,546 tons went into the bunkers of coastwise vessels, leaving a balance of 30,530 tons as representing the export business.

LOCATION AND FACILITIES OF RAILROAD COAL PIERS
AT SEABOARD LOADING PORTS.

The following data relative to coal-handling facilities at certain railroad terminals will be found useful for reference:—

Name of Railroad.	Location of Pier.	When built.	Size in feet.	Method of elevating cars.	Tracks.....	Height. Shore end.....	Sea end.....
N. Y., O. & W.....	Cornwall, N. Y.....	1892	50x816	Incl. plane	1	18	30
N. Y., O. & W., 2...	Weehawken, N. J.....	1890	46x600	Loco. incl.	2	30	34
N. Y., O. & W., 1...	Weehawken, N. J.....	1902	50x600	Loco. incl.	2	28	35
N. Y., S. & W.....	Cliffside, N. J.....	1893	65x957	Incl. plane	2	31	25
Penn., No. 6.....	Greenwich Point	1902	745x65	Cable	3	72	64
Penn., No. 1.....	Greenwich Point .....	.....	497x97	Loco. incl.	5	21	24
Penn., No. 2.....	Greenwich Point	1874	500x58	Loco. incl.	4	29	33
Penn., No. 3.....	Greenwich Point	1871	500x58	Loco. incl.	4	28	33
Penn., No. 4.....	Greenwich Point	1900	650x58	Loco. incl.	4	41	45
Penn., A.....	South Amboy, N. J.....	1872	980x90	Loco. incl.	6	28	25
Penn., B.....	South Amboy, N. J.....	1872	1,710x45-345	Loco. incl.	7	28	35
Penn., C.....	South Amboy, N. J.....	1875	2,195x43-265	Loco. incl.	6	25	37
Penn., Canton.....	Baltimore	1890	790x45	Loco. incl.	2	44	40
Penn., No. 3.....	Baltimore	1881	387x52	Loco. incl.	3	22	23
Penn., No. 4.....	Baltimore	1883	393x99	Loco. incl.	5	32	34
Reading Ry., 16.....	Port Richmond	1893	54x710	Loco. incl.	2	34	26
Reading Ry., 11.....	Port Richmond	1899	61x761	Loco. incl.	4	34	43
Reading Ry., 18.....	Port Richmond	1892	694x43	Loco. incl.	3	25	31
Reading Ry.....	Port Reading, N. J.....	1892	56 wide	Loco. incl.	2	36	19
Reading Ry.....	Port Reading, N. J.....	1897	1,200x60	Loco. incl.	3	16	24
Reading Ry.....	Port Reading, N. J.....	1906	2,600x56	Loco. incl.	4	.....	.....
C. RR. of N. J.....	Jersey City, N. J.....	1887	38 wide	Loco. incl.	2	29	20
C. RR. of N. J., 8.....	Jersey City, N. J.....	1887	1,660x60	Loco. incl.	1	8	38
C. RR. of N. J., 9.....	Jersey City, N. J.....	1888	2,000x40	Loco. incl.	2	8	32
C. RR. of N. J.....	Jayonne, N. J.....	1899	2,000x80	Loco. incl.	2	25	27
C. RR. of N. J.....	Elizabethport, N. J.....	1906	915x59	Loco. incl.	8	32	44
N. & W.....	Lambert Point, Va.....	1884	894x60	Loco. incl.	1	50	44
N. & W.....	Lambert Point, Va.....	1890	50x805	Loco. incl.	1	42	35
N. & W.....	Lambert Point, Va.....	1902	56x850	Incl. plane	2	72	74
D., L. & W.....	Hoboken, N. J.....	1907	46x1,247	Incl. plane	3	47.5	36
D., L. & W.....	Hoboken, N. J.....	1903	1,283x60-72	Gravity	2	4	4
D. & H.....	Weehawken, N. J.....	1887	.....	Incl. plane	1	35	.....
B. & O., 2.....	St. George, S. I.....	1891	300x39	Loco. incl.	3	32	31
B. & O., 3.....	St. George, S. I.....	1901	312x40	Loco. incl.	3	34	33
B. & O., 1.....	St. George, S. I.....	1907	590 long	Cable	7	13.6	9
B. & O.....	Philadelphia, Pa.....	1893	40x700	Loco. incl.	2	18	22
B. & O.....	Curtis Bay	1900	800x60	Loco. incl.	2	43	48
B. & O. (B.S.&W.).....	Baltimore, Md.....	.....	34x270	Loco. incl.	2	30	30
B. & O. (Ham'n).....	Baltimore, Md.....	.....	31x424	Loco. incl.	2	22	22
B. & O. (Consol.).....	Baltimore, Md.....	.....	40x400	Loco. incl.	2	38	32
B. & O. (Boyce 1).....	Baltimore, Md.....	.....	35x195	Loco. incl.	2	22	22
B. & O. (Boyce 2).....	Baltimore, Md.....	.....	34x284	Loco. incl.	2	22	22
Erie.....	Weehawken, N. J.....	1891	.....	Incl. plane	2	36	26
L. V. RR.....	Pier A, Perth Amboy.....	1886	70x800	Gravity	4	29	25
C. & O., 2.....	Newport News, Va.....	1887	44x345	Loco. incl.	2	44	43
C. & O., 3.....	Newport News, Va.....	1882	56x790	Loco. incl.	2	39	35
C. & O., 10.....	Newport News, Va.....	1900	50x450	Loco. incl.	2	55	52
C. & O., 12.....	Newport News, Va.....	1907	59x850	Loco. incl.	2	62	57
Virginian.....	Sewalls Point, Va.....	1909	1,800x25-50	Cable	2	60	60

Operating interests in all bituminous fields should keep the trade situation under full supervision and exercise close control over production and distribution of their tonnage. By taking full advantage of all legitimate opportunities during the fall and winter, many of the losses of earlier months will be overcome.

FLUCTUATIONS OF NEW YORK MARKET.

It will be noted by the tabulation of New York market prices which appears on another page, that at the opening of the year 1909 best Somerset, f. o. b. New York, was quoted at \$2.65 to \$2.75 and remained at that figure until April, when it was quoted at \$2.65 to \$2.90. In May it was down to \$2.60 to \$2.75, while in June it was \$2.55 to \$2.75, and in July it got back to \$2.60 to \$2.75, where the price remained until September, when it was quoted at \$2.65 to \$2.75. In November it advanced to \$2.75 to \$2.85, while in December it reached \$2.80 to \$3.00.

In January best Miller Vein was at \$2.75 to \$2.90, remaining stationary at that price until November, when it was quoted at \$2.85 to \$3.00, and in December it was \$2.95 to \$3.00.

Ordinary Clearfield brought \$1.00 to \$1.10 at the mines in January and remained at that figure until November and December, when it was quoted at \$1.10 to \$1.15.

"Odds and Ends" were quoted at \$2.35 to \$2.45, f. o. b., in January. In February and March they could be had for \$2.25 to \$2.35, while in April the price again went to \$2.35 to \$2.45 and down then to \$2.25 to \$2.35 in May, and to \$2.20 to \$2.30 in June, remaining at this figure until September, when the price was \$2.35 to \$2.40. Then in October the price was \$2.40 to \$2.45; in November \$2.50 to \$2.55, and in December \$2.40 to \$2.45.

All of these prices were above the corresponding figures for 1908, to a slight extent.

CARGO COAL PRICES AT HAMPTON ROADS.

Concerning prices at Hampton Roads, we find that in the spring of 1905, \$2.50 might be considered the representative price for cargo coal at Norfolk and Newport News, and in the fall of the same year, \$2.60.

In 1906 the spring price was \$2.65; fall, \$2.75.

In 1907 prices ranged from \$2.75 in the spring months to \$2.90 in the fall.

During the spring of 1908, \$2.65 and upwards was being obtained, and that figure prevailed, with most shippers, up to January, 1909, with the exception of a month or so in the early fall, when the market stiffened until \$2.80 was realized on current business.

Varied conditions prevailed in 1909. Some low priced contracts were made, and the general tendency of the market was downward, or weak, until fall. The average price was probably not over \$2.50 for the year.

The outlook for 1910 is better than at any time in the last two years. Shippers have practically decided upon a flat price of \$2.70 for the year, although no actual agreement has been entered into by the leading interests.

CALIFORNIA.

Owing to the introduction of fuel oil for industrial purposes throughout the State, there has been little incentive in recent years for the exploitation of the coal deposits of California, which for the most part are of poor quality and inaccessible in location. As a result, the tonnage produced has decreased from upwards of 200,000 tons to something like 20,000 tons in the past ten years. An undertaking rather more ambitious than any previously noted was put under way about two years ago, but the company having met with reverses, operations are suspended for the time being.

MONTANA.

The tonnage in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	1,479,803	1902.....	1,560,823	1906.....	1,829,921
1899.....	1,450,971	1903.....	1,488,810	1907.....	2,016,857
1900.....	1,661,775	1904.....	1,358,919	1908.....	1,920,190
1901.....	1,396,081	1905.....	1,643,832	1909.....	2,541,679

According to estimates, the original coal supply of Montana was 303,060,000,000 tons, from which there had been mined to the close of 1908 approximately 26,700,000 tons, representing an exhaustion, including the waste in mining, of about 40,000,000 tons, or 0.013 per cent., of the original supply. The coal mining industry of Montana, according to the best records available, began in 1880, in which year, according to the United States census, the production amounted to 224 short tons. It was not until 1889, however, that the industry assumed any importance. The production increased nearly 800 per cent. (from 41,647 short tons in 1888 to 363,301 short tons in 1889). During the next six years development advanced rapidly, until in 1895 it exceeded 1,500,000 tons. From 1895 to 1905 the production remained practically steady, ranging from a minimum of 1,358,919 tons in 1904 to a maximum of 1,661,775 in 1900. It increased to 1,852,921 tons in 1906, and exceeded for the first time 2,000,000 tons in 1907.

Product, by counties, as reported by U. S. Geological Survey, has been:

Counties.	Tons, 1903.	Tons, 1904.	Tons, 1905.	Tons, 1906.	Tons, 1907.	Tons, 1908.
Cascade	733,064	599,158	826,026	1,027,923	1,026,223	811,245
Carbon	589,997	544,976	588,414	557,148	746,110	868,112
Choteau	9,875	5,764	6,500	12,305	24,847	19,770
Fergus and Gallatin..	69,830	128,665	138,234	127,108	115,017	106,321
Park	86,044	78,648	81,807	102,339	102,525	106,942
Total, net tons..	1,488,810	1,358,919	1,643,832	1,829,921	2,016,857	1,920,190
Coke	45,107	41,497	68,777	38,182	40,714	34,573

The coal product of Montana is largely used near the point of production in connection with industrial work, such as smelting.

The tonnage by counties for the fiscal year ending October 31, 1909, was: Carbon, 1,098,496; Cascade, 996,571; Choteau, 22,816; Gallatin, 7,441; Park, 117,483; Valley, 1,743; Custer, 7,355; Fergus, 245,229; Yellowstone, 43,994; Rosebud, 551. This was an increase of 28 per cent. over the largest previous production in the history of the State.

SHIPMENTS TO LAKESIDE PORTS.

The lake tonnage from contributing districts for the nine years ending 1909, was as follows:

	Pittsburgh District.	Ohio District.	West Va. District.	Total.
1901.....	3,795,706	1,954,825	787,572	6,538,103
1902.....	4,704,092	2,689,974	965,769	8,359,836
1903.....	6,092,047	2,456,265	1,539,433	10,089,747
1904.....	6,058,385	2,138,247	1,279,876	9,476,506
1905.....	7,443,863	2,062,692	2,109,262	11,615,637
1906.....	9,267,272	2,560,906	2,743,732	14,591,910
1907.....	10,549,995	4,074,296	3,420,941	18,037,232
1908.....	8,700,000	3,600,000	3,450,000	15,750,000
1909.....	8,687,305	3,002,815	3,874,570	15,564,690

THE YEAR AT BOSTON.

Reviewing the year of 1909 for the Boston trade we do not have to report such a gloomy situation as was the case at the end of the previous twelve months. At the beginning of the year general business was under considerable depression, but in spite of this the uncertainty of what the labor situation at the anthracite mines would be after April 1st resulted in unusual activity with both operators and sales agents during the first three months of the year. Large stocks of all sizes were accumulated, both at the mines and by the dealers, and the general opinion prevailed that a strike or, at least, a prolonged suspension of mining operations was assured. It is probable that on April 1st there was a greater quantity of hard coal in storage in the New England States than ever before.

The usual full discount was put in force the first of April, regardless of the unsettled condition. Before the end of April an agreement was reached with the miners, and as every one was stocked to the limit of storage capacity the demand became so limited that curtailment of mining operations was necessary. Full time was not resumed until about the first of September, when the demand increased sufficiently to warrant normal production which continued with little interruption for the rest of the year. The weather in New England during the late autumn was the mildest we have had for years. This naturally had a depressing effect upon the market for domestic sizes and the year closed with trade very dull for both wholesaler and retailer.

Steam coal was in good demand through the year, and during the last three months there developed considerable shortage in various sections, and in some cases it became necessary to substitute soft coal in plants having contracts calling for buckwheat.

The bituminous coal trade for 1909 was very unsatisfactory to both operators and middle houses. Prices were abnormally low and profits were cut to the bone, in order to meet competition. The year started in with West Virginia coal predominating the trade, being laid down at very low figures at Boston owing to the low freight rate then prevailing. The market was flooded with this low-priced coal and demurrage charges were the rule on practically all cargoes arriving during the early spring.

There was a feeble effort early in March to place all southern coal on a basis of \$3.53 on the cars at Boston, but this failed and prices went even lower. Contracts were solicited and placed earlier than usual, and many large ones were taken at \$3.10 and even less. Some of the shippers of southern coal tied up the greater portion of their prospective output on these ridiculously low-priced orders.

While all this was going on with the shippers of West Virginia coal, there was little for the Pennsylvania shippers to do but confine themselves to strictly all-rail territory. Name as low price as they would, they could not meet the competition of the southern shippers, and the result was that they were forced into a restricted territory and the rivalry was all the more keen in debatable markets.

The demand for soft coal was light until the latter part of August when the contract demand began to increase. This was followed by a resumption of operation by many of the shippers of cheaper grades, who could now find a market. In September a car shortage began to develop, and this was closely followed by a shortage of labor at the mines. These factors tended to reduce the output to such an extent that by the end of October the shortage of soft coal in many sections became quite

noticeable and prices advanced slightly on spot coal. Contract coal was called for in large volume and practically none of the shippers of high-grade coal had anything free to offer on the open market. Prices continued firm until about Christmas, when they advanced sharply owing to the increasing shortage caused by the severe storm which tied up all rail transportation, as well as interfering seriously with coastwise shipments.

Delays at southern loading ports became more and more serious and contract consumers got very short of coal. Prices were quoted as high as \$4.00 f. o. c. Mystic Wharf, and the year closed with marked contrast in the tone of the market from that prevailing at its beginning.

The prevailing opinion among shippers appears to be that the outlook for 1910 is much more favorable than was the prospect for 1909. The agreements entered into by southern shippers, if adhered to, will give stability to the market and if general business keeps up, as we have every reason to expect it will, the demand for a steam coal will be sufficient to give the producers a very busy year.

Vessel freights during the year were very low, but showed some improvement over the previous year. The abnormally low rates of 1908 forced many of the smaller craft to tie up, and some of the charters made the past year hardly gave them a living rate. Rates varied all the way from 50 cents to \$1.00 from Hampton Roads to Boston, the lower rate prevailing on a few large vessels early in the season and advancing to the latter around Christmas.

The receipts of coal at Boston for the years stated were as follows:

	1905	1906	1907	1908	1909
Anthracite	1,977,198	1,659,679	2,053,328	1,776,401	1,706,659
Bituminous	2,998,390	3,548,385	3,184,964	3,302,929	3,495,011
Nova Scotia and Great Britain.	608,471	658,072	545,652	370,709	228,297
Total....	5,584,059	5,866,136	5,783,944	5,450,039	5,429,967

The returns for the five years specified show a notable uniformity.

TONNAGE RECEIVED AT DULUTH AND SUPERIOR.

Coal forms by far the largest receipts at the Twin Ports, Duluth and Superior, and the amount of capital invested in the large docks, with their extensive equipment, as well as the sums paid out yearly to the workmen employed, makes the coal dock industry one of the most important at the Head of the Lakes.

Receipts at these ports during recent years have been:—

Year.	Anth.	Bit.	Total.	Year.	Anth.	Bit.	Total.
1900....	510,000	2,285,365	2,795,365	1905....	891,886	2,634,540	3,526,426
1901....	921,531	1,958,895	2,880,426	1906....	821,523	4,509,596	5,331,119
1902....	290,736	2,382,803	2,673,539	1907....	1,219,103	5,805,581	7,024,684
1903....	997,733	3,221,478	4,219,211	1908....	1,064,485	4,614,364	5,678,849
1904....	827,878	3,064,972	3,892,850	1909....	1,137,378	4,525,329	5,662,707

Of the anthracite tonnage in 1908, 912,492 tons were received at Superior and 151,993 at Duluth; bituminous 3,225,581 at Superior and 1,388,783 at Duluth.

The 1909 tonnage was divided as follows: Anthracite, 987,592 tons at Superior and 149,786 at Duluth; bituminous, 3,040,789 at Superior and 1,484,540 at Duluth.

COAL TRADE CONDITIONS AT PITTSBURGH.

The year 1909 presented contrasts to the record made in 1908 in two ways. First, there was an increase of tonnage of somewhere between 12 and 20 per cent.; and second, there was an average declension of price, so that while volume of business increased, average returns were not so satisfactory.

Increase of volume was due to the spurt that came along in all lines of coal-consuming business after the mid-year turn in 1909, and after the perturbations and uncertainties and confusions that were, and always are, incident to tariff legislation were adjusted.

It was when producers were in the midst of this demand for more coal and cars had become scarce that the State Mining Department issued a mandate forbidding the use of black powder in gaseous mines, with positive instructions to inspectors to enforce the regulation. This led to contention among the miners and some local strikes that interrupted orderly operations, developed a cleavage that is still unsettled and promises to become a bone of serious contention before the new wage scales are agreed upon.

Accidents of the more spectacular kind were few during the year, but the number of minor ones was about as large as in former years, number of men employed and number of tons of coal produced being taken as the gauge of estimation.

Price for 1909 was upset early in the year by a congeries of influences, chief of which was that there had been an absolute refusal on the part of certain companies to renew the pact that ruled throughout 1908 to maintain prices at a level against all comers and competition from rival districts. This pact was carried out with more than customary fidelity, but largely through the determined stand taken by three companies, despite desire of others to cut loose.

The result of this was that some of the companies relatively lost tonnage, not because of quality of coal, but because others had better salesmen. This engendered antagonisms, and when the year 1909 opened the disaffected ones refused to "go along" in a renewal of the pact, and began a policy of price slashing on contract business that resulted in their getting a lower average price for all of their contract production without their regaining any considerable part of their lost tonnage. They were, however, able to demoralize the price lists throughout the year, and are accused of trying to "steal" tonnage from rivals.

One of the notable events of the year was heavy buying of the shares of the Pittsburgh Coal Co., and much disturbance of the elder owners as to what was behind the buying and what it portended. This matter is yet "up in the air" but at this writing it is declared that there has been a compounding of acerbities and a truce whereby the old executives are to be retained, but a new policy is to be pursued.

Lake shipments of coal were maintained on parity lines with former years as to volume, Pittsburgh furnishing more than the combined tonnage of Ohio and West Virginia; and there was also an enlarged tonnage of coal to Canadian markets. This marketing field, by the way, has shown continuous enlargement each year, the tonnage value reaching \$17,000,000 for bituminous, and \$14,000,000 for anthracite. The 1909 exports across the border were heavier than ever before, due to multiplying industries and extension of railway building. Since 1900 the Canadian market for coal of all grades shows an increase of \$20,000,000 in value.

One of the likewise notable developments of the year was the heavy amounts of capital invested in coal lands lying within the area of the Pittsburgh seam, the estimated amount being over \$25,000,000, and the chief buyers J. V. Thompson, of Uniontown, and associates: Frank M. Osborne, John G. Patterson and Samuel Mather, of Cleveland, O., each of whom have taken up considerable acreages for investment only.

Coke makers have seen prices and tonnage rise and fall, the former rather more pronouncedly than the latter; for while prices rose to \$2.90 and \$3 for furnace coke around November, they began to sag in early December and kept on until they almost reached the low levels of the first half of the year.

The year 1910 promises well in coal tonnage and some betterment in price, but on higher wage-cost planes, higher costs of management and equipment, as incident to enforced installation of safety devices and provisions; so that it is much to be doubted whether the higher prices received will compensate for the higher costs involved. Moreover, the year does not open with any assurance of freedom from a suspension of mining after April, as there are a number of perplexing questions that are to be adjusted to the satisfaction of the miners and operators, and on some of them division is radical and, seemingly, uncompromisable. There is at the same time ominous portent of a year of disturbances due to wage controversies in important industries everywhere and therefore irregularity to trade. Northwestern trade promises well in tonnage, but the ferocity of competition in that market, coupled with increases in the number of docking companies—three having been added during the year: the Pittsburgh-Buffalo Co., the Belmont C. M. Co., and the Carnegie Coal & Dock Co.—does not impart that confidence and orderly procedure that is much to be desired.

RECEIPTS AT CANADIAN UPPER LAKE PORTS.

The tonnage of bituminous coal received at the principal Canadian ports on the upper lakes during the calendar year 1909, as reported by the Canadian Department of Customs, was as follows: Fort William, 1,204,791 tons; Port Arthur, 530,611; Sault Ste Marie, 375,180; Sarnia, 348,340; Parry Sound, 99,767; Midland, 73,766; Owen Sound, 48,329; Goderich, 28,169. Total, 2,708,953 tons.

Of the above total there was 152,637 tons of slack, which is received duty free.

In addition to those referred to above, the following smaller Canadian towns on the Upper Lakes receive coal by water:—Collingwood, Kincardine, Wiarton, Thessalon, Bruce Mines, Michipicoten and Deep Harbor. These ports are all in Ontario.

While we are unable to give an estimate of the total amount of bituminous coal going up the lakes to Canadian ports, the eight places for which tonnages are given receive the great bulk of the coal.

The receipts of coal at San Francisco during the year 1909 were 82,626 tons less than the tonnage received during the year previous, when the total amounted to 389,221 tons. Reports from most sections state that 1909 tonnages increased over those of 1908 and there are a few places to be found where there was a decrease. But in the coal trade California is a law unto itself.

ILLINOIS.

The tonnage has been as follows, for fiscal years ending June 30th:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	18,599,299	1902.....	30,021,900	1906.....	38,317,581
1899.....	23,434,455	1903.....	34,962,484	1907.....	47,798,621
1900.....	25,153,929	1904.....	37,077,897	1908.....	49,272,452
1901.....	26,616,928	1905.....	37,183,374	1909.....	49,163,710

Hon. David Ross, secretary of the State Bureau of Labor Statistics, has prepared the following details of operations for fiscal years ending June 30th:—

Details.	1905.	1906.	1907.	1908.	1909.
Coal mined	37,183,374	38,317,581	47,798,621	49,272,452	49,163,710
Lump coal	16,819,321	16,878,088	20,599,509	21,166,563	21,680,602
Other grades	20,364,053	21,439,493	27,199,112	28,105,887	27,483,108
Coal, mach. mined	8,202,066	9,563,230	14,490,454	15,210,423	16,407,692

The United States Geological Survey makes a statement showing the distribution and use of the coal, in net tons (calendar years):—

Year.	Shipment.	Local.	At mines.	For coke.	Total.
1903.....	32,911,291	2,785,473	1,232,204	28,316	36,957,104
1904.....	32,429,921	2,810,152	1,227,320	7,667	39,941,993
1905.....	34,160,115	2,891,220	1,374,308	8,720	38,434,363
1906.....	37,273,693	2,778,141	1,418,197	10,073	41,480,104
1907.....	46,908,118	2,775,321	1,625,112	8,595	51,317,146
1908.....	43,468,245	2,696,972	1,491,514	2,959	47,659,690

The coal production of Illinois, by counties, for the fiscal year ending June 30, 1909, and for the preceding year, was as follows:—

	1909.	1908.		1909.	1908.
Bond	93,095	103,518	McLean	129,614	122,416
Bureau	1,654,902	1,688,528	Menard	278,058	397,526
Christian	1,380,515	1,426,123	Mercer	396,087	419,448
Clinton	1,051,108	1,152,670	Montgomery ...	1,480,635	1,382,368
Franklin	2,442,978	1,678,195	Peoria	821,329	1,054,673
Fulton	2,205,322	2,141,489	Perry	1,536,903	1,610,411
Gallatin	58,218	75,322	Putnam	561,804	403,136
Grundy	1,177,073	1,174,482	Randolph	757,622	777,327
Henry	133,920	147,482	Rock Island ...	51,241	62,961
Jackson	650,033	637,090	Saline	2,798,527	2,482,677
Kankakee	33,908	17,801	Sangamon	5,334,148	5,082,626
Knox	38,172	44,070	Shelby	164,095	185,289
La Salle	1,666,220	1,626,931	St. Clair	3,409,362	4,413,639
Livingston	258,495	302,342	Tazewell	197,536	218,435
Logan	343,582	430,010	Vermillion	2,221,634	2,659,762
Macon	197,633	237,636	Washington	48,116	75,548
Macoupin	4,361,390	4,224,865	Will	182,612	161,041
Madison	3,287,418	3,584,106	Williamson ...	5,901,815	5,367,140
Marion.....	1,096,847	954,925	Woodford	184,964	163,140
Marshall	421,552	423,029			
McDonough ...	25,326	35,576	Total	49,163,710	49,272,452

Of the total output of the last fiscal year 47,958,562 tons was produced by mines having railroad connections, the remainder being turned out by small operations and used locally. Of the 1908 tonnage 47,809,730 tons was produced by shipping mines. The totals also include the output of certain

counties producing less than 25,000 tons per annum.

The secretary of Bureau of Labor Statistics sends the following details for the year ending June 30, 1909:

Counties producing coal, 55; mines and openings, 886; new or old mines re-opened, 81; mines closed and abandoned, 117; output of all mines, net tons, 49,163,710; commercial mines, 384; output of shipping mines, tons, 47,958,562; mines in local trade only, 502; output of local mines, 1,205,148 tons.

Tons of mine-run coal, 8,715,759; tons of lump coal, 21,680,602; tons of egg coal, 3,444,652; tons of nut coal, 2,944,036; tons of pea coal, 10,587,057; tons of slack coal, 1,791,644; tons shipped, 43,894,902; tons supplied locomotives at mines, 1,623,294; sold to local trade, 2,316,778; consumed (or wasted) at the plant, 1,928,736.

Average days active shipping mines, 189; average per ton all grades at shipping mines, \$1.01; aggregate home value product, \$50,303,757; average value per ton all grades at the mines, \$1.23; mines in which machines are used, 107; mining machines in use, 1,246; tons undercut by machines, 16,407,692; tons mined by hand, 32,756,018.

Miners employed during the year, 50,834; other employes underground, 13,788; boys employed underground, 1,752; employed above ground 6,288; total number of employes, 72,733; persons at work underground, 66,374; persons at work on surface, 6,359; average price per gross ton, hand mining, shipping mines, 59.3 cents; average price paid per gross ton, machine mining, 46 cents; kegs of powder used for blasting coal, 1,280,607; kegs of powder used for other purposes, 3,963; men accidentally killed, 213.

It is estimated that the production for the calendar year 1909 amounted to 52,000,000 tons.

NORFOLK & WESTERN RY. CO. FINANCIAL.

The annual report of the Norfolk & Western Ry. Co. for the fiscal year ending June 30, 1909, shows the following comparison with the preceding year:—

	1908.	1909.
Total earnings	\$28,962,217	\$29,327,101
Operating expenses	18,764,713	17,729,756
Net earnings	10,197,503	11,597,345
Other income	920,963	981,112
Total income	11,118,466	12,578,457
Interest, taxes, etc.....	5,398,350	5,913,024
Net income	5,720,116	6,665,432

From the net income for the last fiscal year the following amounts have been deducted: Interest on Norfolk & Western-Pocahontas C. & C. Co. joint bonds, \$150,000; dividends on preferred stock, \$919,668; dividend on common stock, \$2,578,768.

RUSSIAN COAL OUTPUT.

The consignments of coal, coke, briquettes, and lignite, dispatched from the central coal basin of Russia during the year 1909 amounted to 13,400,000 tons, as compared with 13,800,000 tons in the previous year. Last year's total comprised the following:—Coal, 9,713,000 tons, as against 10,019,000 tons in 1908; coke, 1,363,000 tons, as against 1,416,000 tons in 1908; briquettes, 180,000 tons, as against 181,000 tons in 1908; and lignite, 2,144,000 tons, as against 2,184,000 tons in 1908.

PHILADELPHIA.

When a large shipper of bituminous coal was asked recently to give a brief résumé of the year's business and its attendant events, he replied that he "would rather not think about it." The answer expresses at least the spirit, if not the actual thought, of a majority. The year has not been a prosperous one, to say the least. It was born in gloom and died in depression, with but few bright spots to mark its career.

When the year 1909 commenced, the effects of the panic of 1907 in so far as industrial depression was concerned, were still abroad in the land. The hoped-for relief did not come with the inauguration of Mr. Taft, as had been predicted, but waited upon the tariff legislation and, to a certain marked extent, the bituminous coal business waited on an industrial revival. The "bearing" of the market in New England, theretofore a principal outlet for Pennsylvania coal, by the Southern coals was still going on and, as a matter of fact, has never appreciably let up. Central Pennsylvania operators saw their market slowly but surely being swept away and were forced to turn upon each other in a battle for sales. Competition waxed keener and more bitter but consumption was not even normal and the restricted market yielded unsatisfactory business. The invisible line across New England, east of which all-rail shipment is unprofitable, slowly receded westward while the product of the Pocohontas and New River districts poured into the market.

These conditions continued without abatement until the tariff law was passed and the country suddenly awoke to the fact that it had business in hand which needed attention. Then the Pennsylvania soft-coal men prepared for their well-merited business boom. And still they waited! Factories, mills and shops resumed work and orders began to come in. The railroads became overtaxed and coal shippers found themselves face to face with a serious shortage of cars and motive power. To some this was welcome because, with growing demand for coal, it seemed to spell better prices. Even with improved prices, however, coal which cannot be hauled to market is not worth much and once more the producers were in a dilemma.

Latterly the supply of cars and engines has improved and the movement of coal has increased. Severe weather has caused the curtailment of production in many places and the demand is reasonably heavy. Yet prices do not move upward as could reasonably be looked for under such circumstances. Some of the most sagacious, oldest and most far-seeing dealers in this city declare that they are puzzled over the situation and protest that all their experiences gives them no foundation on which to base an explanation of the sluggishness under boom conditions. Some contend that the ultimate reason of all troubles of soft coal producers is over-production, and that only when there is less coal on the market will general conditions, including prices, improve materially. How such a condition might be brought about is not even suggested.

Just now the bituminous operators in the Central Pennsylvania region are concerned with what is probably the most vitally important problem of their separate and collective careers. For months they have been declaiming that nothing but a reduction in the cost of production could save them from annihilation at the hands of their competitors. And that reduction must come, they say, in the wages of the miners, there being no other possible point of attack for the pruning knife. To meet this the miners, who are strongly unionized, present a demand for 10 cents more

per ton. In the only competitive fields the miners are not organized and the cost of production is materially less. Repeated conferences have been held, so far without much result, and the Central Pennsylvania operators face, in common with operators in practically all other union fields, a strike on April 1st unless an adjustment be made in the meantime.

THE YEAR IN ANTHRACITE

The year began for the anthracite coal men with a steady but small demand for coal—small because of the continued necessity for close living. The danger of trouble with the miners stimulated the demand somewhat in the early months of the year but the experience was scarcely a parallel to that in similar circumstances at the expiration of former working agreements. When the matter was finally settled and an agreement signed the summer stagnation was already upon the market. There had not been the customary rush for coal under the April reduction for the reason that comparatively few people had the cash to spare, after the panic, to buy large stocks of coal.

The summer months were ordinary—no more, no less. With the coming of chill weather and the reaction from the hard times, business steadily improved and even the shortage of cars and engines on the railroads, affecting all, but the Pennsylvania R.R. especially, failed to hurt matters much, although at times the stocks of dealers ran rather low before supplies could be gotten through. The demand continued steady and fair until the end of the year, with something approaching a boom in November, when many producers and retailers reported the best November business in their history.

There were few startling or interesting events among the dealers in either branch. A number of men who had forged ahead to a leadership in the trade passed away but there was little otherwise that stands out prominently in a general review of the year.

FUEL TRAFFIC OF NEW YORK CENTRAL.

Revised figures, omitting all duplication of tonnage and supply coal on lines east of Buffalo exclusive of Rutland RR., are as follows for years named:—

	1904.	1905.	1906.	1907.*	1908.*	1909.*
Anthracite	4,284,751	4,980,192	4,609,021	5,480,394	5,135,313	5,215,439
Bituminous	8,975,114	10,584,243	9,314,250	12,632,294	10,028,986	11,404,560
Coke	375,684	669,067	688,916	822,379	506,944	838,325

In addition to the bituminous coal tonnage shown, the company handled in its calendar year 4,650,000 tons of supply coal, which, of course, is not included in the commercial figures.

On the Rutland and New York & Ottawa roads the company handled 480,641 tons of coal and coke during 1909.

*The 1907, 1908, and 1909 figures are for the calendar year. Previous reports covered the fiscal years ending June 30th.

Receipts of coal by lake and rail at Toronto in 1909 aggregated 1,131,728 tons, or about 90,000 tons less than in 1908. Of this amount 123,374 tons were brought in by vessels, the lake business showing a falling off of some 25,000 tons as compared with 1908.

OHIO.

The tonnage in this State in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	14,058,135	1902.....	23,929,267	1906.....	27,731,640
1899.....	15,908,934	1903.....	24,838,103	1907.....	32,465,949
1900.....	19,436,649	1904.....	24,434,812	1908.....	26,268,239
1901.....	20,321,290	1905.....	25,834,657	1909.....	27,756,192

Some details of the 1909 output are shown in the following table:—

Counties.	Mined by pick.	Mined by machine.	Total.	Counties.	Mined by pick.	Mined by machine.	Total.
Athens	155,931	4,192,133	4,354,064	Meigs	56,713	486,882	543,595
Belmont	225,665	5,767,753	5,993,418	Morgan .....	.....	187,241	187,241
Carroll	64,868	333,227	398,085	Muskingum	232,469	183,758	416,217
Columbiana	288,948	425,377	714,325	Noble	25,478	353,577	379,055
Coshocton	227,900	162,402	390,302	Perry	185,526	1,890,881	2,076,407
Guernsey	27,150	3,081,936	3,109,086	Portage	83,524	19,100	102,624
Harrison	39,734	536,428	576,162	Stark	395,766	63,796	459,562
Hocking	209,137	827,206	1,036,343	Tuscarawas	960,247	553,653	1,513,900
Jackson	588,764	234,270	823,034	Vinton	49,250	79,678	128,928
Jefferson	355,096	3,701,052	4,056,148				
Lawrence	179,766	34,919	214,685	Total	4,609,172	23,147,020	27,756,192

The coal industry in the State of Ohio for the year 1909, while showing a perceptible increase in tonnage over that of 1908, was still far from equalling the high tide production of the year 1907, when it amounted to almost 32,500,000 tons.

The Hocking Valley district (Athens, Hocking and Perry Counties), shows a loss in tonnage, while eastern Ohio (Belmont, Harrison and Jefferson Counties), reported an increase of over a million tons.

Production by counties in recent years has been:—

Counties.	1904.	1905.	1906.	1907.	1908.	1909.
Athens	3,343,615	3,848,440	4,003,074	4,562,694	4,170,995	4,354,064
Belmont	3,172,350	3,871,846	4,268,965	6,208,188	5,692,897	5,993,418
Carroll	235,010	235,826	195,713	367,062	439,080	398,085
Columbiana	802,687	705,824	607,417	709,515	450,155	714,325
Coshocton	340,344	333,932	367,600	403,015	366,806	390,302
Guernsey	3,124,702	2,896,756	3,273,838	3,970,925	2,926,998	3,109,086
Harrison	264,519	402,679	290,232	499,300	447,905	576,162
Hocking	2,458,402	1,887,904	1,793,112	1,648,581	1,282,647	1,036,343
Jackson	1,936,451	1,695,763	1,369,800	1,234,877	835,332	823,034
Jefferson	2,416,122	3,337,799	4,515,420	4,528,006	3,615,698	4,056,148
Lawrence	183,604	212,949	177,145	243,027	180,265	214,685
Mahoning	87,515	117,074	117,989	94,335	87,629	63,974
Meigs	185,396	370,587	429,435	330,503	475,066	543,595
Morgan	83,800	173,551	223,625	321,793	217,035	187,241
Muskingum	267,498	242,011	282,348	414,521	439,947	416,217
Noble	90,963	171,509	*401,316	*314,761	*235,325	379,055
Perry	2,452,916	2,399,570	2,557,588	2,901,147	2,108,050	2,076,407
Stark	768,113	774,832	579,640	687,866	523,652	102,624
Summit	89,985	115,529	104,216	104,236	83,294	459,562
Tuscarawas	1,552,065	1,361,394	1,413,751	1,797,899	1,331,248	1,513,900
Vinton	206,622	224,275	210,984	254,529	184,846	128,928
Wayne	81,369	165,224	215,031	185,260	125,525	86,987
Total net tons.	24,434,812	25,834,657	27,731,640	32,142,419	26,268,239	27,756,192

* Includes Scioto.

The most notable gains were reported from Jefferson, the total production being 4,056,158, or a gain of 491,156 tons; Belmont, 5,993,418, a gain of 401,700 tons; Guernsey County, over 3,000,000 tons, a gain of over 182,000 tons; Athens County, 4,300,000, a gain of 183,000. Belmont County ranked first in production, Athens second, Jefferson third, Guernsey fourth, Perry fifth, and Tuscarawas sixth.

The machine tonnage for the year amounted to 23,147,020 tons, a gain

of over 1,500,000 tons; the pick tonnage, 4,609,172 tons, a loss of over 67,500 tons.

A compilation of the statistical reports received from all the coal producing counties of the State for the year shows an increase in the coal production of over one and a half million tons. While this is somewhat of an increase when compared with the tonnage of 1908, yet the results show that the country had not recovered (in 1909) from industrial and financial conditions which affected the coal industry during the latter part of the year 1907, and extended throughout the year 1908. The results, however, are such as to give encouragement to those engaged in the industry that the year 1910 will show a decided revivement, and that the tonnage will again assume the high proportions reached during the wave of prosperity which the country enjoyed previous to the depression in the industrial activities through which we have just been passing.

The Hocking Valley district, which for years was the leading producing district of the State, reported a loss as compared with the preceding year, while the eastern Ohio, or No. 8 Vein, reported an increase of over a million tons. The Cambridge district also showed an increase in tonnage.

There was no shortage of labor in evidence, and no strikes of any importance occurred to cause a cessation of work, as the inter-State wage agreement was still in force during the year, and only minor local troubles of little importance disturbed the status of the coal trade, and were quickly disposed of.

RECEIPTS AT TORONTO, ONT.

The receipts of coal at Toronto, Ont., both grades, in the year 1901, amounted to 346,580 tons, and the tonnage steadily increased to 695,323 tons in 1904. In the year 1905, receipts of both grades by water amounted to 182,453 gross tons, and during 1906, 162,502 tons were so received. At that time statistics were not kept in such form as to show total receipts. For the year 1907 the imports were: Bituminous, 401,407 tons; bituminous dust, 257,464 tons; and anthracite 643,862 tons, a total of 1,302,733 tons.

For the year 1908 the imports were: Bituminous, 331,844 tons; bituminous dust, 223,472 tons; and anthracite, 662,573 tons, a total of 1,117,889 tons.

For the year 1909 the imports were: Bituminous, 327,298; bituminous dust, 231,003; and anthracite, 473,427 tons, a total of 1,031,725 tons.

PROPORTION OF UNMINED ANTHRACITE.

Back in 1908 William Griffith testified as to the output of anthracite coal, the extent of the fields, and the probable life of the supply under ground at a hearing in the "coal trust" case in New York. According to his testimony the total probable future supply of coal for shipments to the markets is controlled by the railroads in the following proportions:

Delaware, Lackawanna & Western, 6.55; Delaware & Hudson, 2.29; Erie & Wyoming Valley, 1.82; Erie Railroad, .77; New York, Ontario & Western, .28; New York, Susquehanna & Western, .54; Delaware, Susquehanna & Schuylkill, 1.38; Pennsylvania, 6.24; Central of New Jersey, 17.35; Lehigh Valley, 16.87; Philadelphia & Reading, 42.25; uncontrolled, 3.71 per cent.

TOLEDO, OHIO.

The résumé of 1909 is not unlike a well written drama in which all action leads up to a climax, the *denouement* coming well toward close of the year. The early months found the trade dull; production, although not exceeding 65 per cent. of mine capacity, in excess of demand; movement free; customers disposed to buy in the open market instead of under contract, and prices almost suicidal. These months were the reconstruction period after the business depression, and operators and dealers who sought to force things only made them worse by crowding coal on the market and then, to avoid demurrage, being obliged to sell at prices which meant not only loss in many instances, but a further demoralizing of the market.

Summer found things but slightly if any improved, and when fall came consumers continued to turn a deaf ear on advice from sellers who sought to have them cover by contract or buy for more than immediate needs. Then followed a period of increased shipments in other commodities, an accompanying shortage of cars for coal and a general inability to give prompt movement. Prices then began to advance, and with them came embargoes from many of the connecting lines in Toledo, which attempted to accept coal only at intervals. Operators began to realize prices which meant not only elimination of operating at a loss, but some degree of profit.

Lake navigation was slow in starting, little being done till well toward June, and while at no time did there seem to be a rush at the coal docks, yet somehow about as much was loaded as the year previous.

Reports for 1909 show that the Hocking Valley R.R. docks, in which are included the operations of the Ohio Central R.R. docks, loaded 2,130,000 tons, as compared with 2,295,000 tons during 1908. The C., H. & D. R.R. docks loaded 1,250,000 tons as against 580,000 tons for the year before. Thus while the H. V. showed a loss, the C., H. & D. more than doubled its shipments for this year. The company has purchased more than 16 acres of land, on which it is erecting immense iron ore docks with an annual capacity of nearly a million tons. Ultimately its coal handling facilities will be doubled.

The early months of 1910 found things buoyed up by an unusually cold winter, failure of miners and operators to agree at their first joint conference and a liberal tendency on the part of the railroads to confiscate coal for their own use.

ANTHRACITE WILL COST MORE.

"With regard to anthracite," E. W. Parker says, "it must be remembered that, with the advances in sympathy with the general tendency toward higher prices, there is the additional fact that the bonanza coal beds have been practically exhausted, and the mining of the deeper and thinner beds increases the cost, which must be made up, as I have stated, by higher prices." Mr. Parker doubts "if the production of anthracite will ever greatly exceed the production of 1907, which was about 76,000,000 long tons. When the period of decline does set in," he says, "the decrease in production will be gradual, and some anthracite will be used well into the next century; but it is slowly and surely becoming more and more of a luxury, and we may look for gradually increasing prices, as the workings become deeper and thinner beds are drawn upon."

NEW ORLEANS.

While there are no official figures available, in the form of Government reports or otherwise, the total coal commerce of New Orleans is estimated at about 1,850,000 tons a year, of which 1,250,000 tons is received by water and 600,000 tons by rail. The million and a quarter tons which annually floats down the Ohio and Mississippi Rivers from the Pittsburgh district is used very largely for bunkering steamers. Such coal is not stored on docks, but is transferred to the consuming vessel directly from the barges.

The receipts last year were somewhat lighter than normal, owing to river navigation having been interrupted more than usual by low water and to curtailed consumption in the early months of 1909, general business at that time not having fully recovered from the effects of the panic depression. River business in 1909, however, probably amounted to fully 1,000,000 tons. A considerable part of the coal included in estimates of river tonnage is actually unloaded at points north of the city; but as it is sold through the New Orleans market it should be included in the statement of local business.

A big reserve stock is ordinarily kept in barges to tide over the periods when receipts by river are shut off by low water. A heavy tonnage stored in this manner was sunk by a hurricane which swept over the lower Mississippi Valley on the 20th of September, 1909. While much of the sunken coal was recovered by dredging and by raising the barges themselves, the loss was heavy.

As artificial heat is required in New Orleans only about two months in the year, 100,000 tons per annum is a generous estimate of the local consumption for domestic use. The local consumption of anthracite is now about 20,000 tons annually and steadily increasing, for many of the larger houses now being constructed are equipped with furnaces.

The largest industrial user of coal is probably the American Sugar Refining Co., its local plant taking about 150,000 tons annually. A large tonnage of coal is consumed by the railroads in and about New Orleans which does not enter into the figures of the trade presented above.

The Illinois Central penetrates the coal field of southern Illinois, and the Queen & Crescent pierces the Alabama fields and resorts to that field for its fuel necessities. But in the New Orleans market, the Texas & Pacific buys about 200,000 tons per annum. It is at present using Pittsburgh coal. Oil is consumed on the passenger locomotives of the Southern Pacific, but for its freight engines this system now purchases at New Orleans about 150,000 tons of Alabama and Kentucky coal annually. Other roads buy some of their fuel here, and various industries in the territory west of New Orleans receive their fuel supplies from that market.

Of the 600,000 tons of all-rail bituminous coal sold locally in a year, the greatest percentage comes from Alabama, with Kentucky and Illinois following in the order named. The exploitation of the oil fields of Louisiana has affected the steam coal trade to some extent, but this loss will be regained in time, as was the case a number of years ago when the Texas oil wells began to run dry.

The amount of pig iron made in 1909 with anthracite coal and coke, used in combination, was 698,431 tons, according to the figures of the American Iron & Steel Association. The proportion of anthracite pig iron was once very large, but it is now only a small percentage of the total.

COLORADO.

The tonnage has been as follows, according to reports of mine inspectors:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	4,164,037	1902.....	7,522,923	1906.....	10,111,218
1899.....	4,806,879	1903.....	7,800,694	1907.....	10,965,640
1900.....	5,495,734	1904.....	6,658,355	1908.....	9,733,007
1901.....	5,978,410	1905.....	8,826,429	1909.....	10,772,490

The production in the past four years, by counties, was as below:—

Counties.	1906.	1907.	1908.	1909.
Las Animas	4,854,606	5,036,456	4,347,085	4,656,840
Huerfano	1,649,075	1,643,205	1,534,347	1,867,424
Boulder	1,135,028	1,399,518	1,133,323	1,356,739
Fremont	701,876	781,628	626,069	612,803
Gunnison	586,844	578,841	506,015	597,825
Pitkin	317,888	312,893	239,010	200,869
Jefferson	213,723	193,819	165,969	193,397
El Paso	204,154	264,607	329,297	314,782
Garfield	194,956	214,382	208,958	214,194
La Plata	179,531	189,357	154,546	139,520
Weld	114,796	203,428	360,954	308,329
Mesa	42,552	61,310	62,792	94,738
Douglas	1,614	632	1,250	130
Delta	1,049	15,414	29,951	50,246
Routt			3,000	92,154
Montezuma	729	150	411	500
Jackson				2,000
Mines not reporting (est.)	110,000	70,000	70,000	70,000
Total	10,111,218	10,965,640	9,773,007	10,772,490

It will be noticed that the great bulk of the production comes from the counties of Las Animas and Huerfano, in the southern part of the State, and from Boulder, in the northern part of the State. The two counties first named are the chief source of reliance for the coal used for industrial purposes and coke making, the operations of the Colorado Fuel & Iron Co., embracing coke ovens and rolling mills as well as coal mines, being located in the section between Pueblo and Trinidad. Boulder County, on the other hand, is the reliance of the city of Denver for a considerable part of its steam and domestic fuel. Both sections, of course, furnish a large tonnage of coal for railroad purposes.

The following details as to operations during the calendar years since 1906 are of interest:

	1906.	1907.	1908.	1909.
Lignite produced	1,670,044	2,062,154	1,991,234	2,000,000
Semi-bituminous produced	911,265	985,222	818,216	900,000
Bituminous produced	7,548,769	7,803,147	6,824,117	7,612,308
Anthracite produced	68,343	45,113	69,440	60,944
Unclassified, est.	110,000	70,000	70,000	199,238
Total coal produced	10,111,218	10,965,640	9,773,007	10,772,490
Total coke produced	1,113,643	1,097,051	854,662	1,091,882
Total coke ovens	3,376	2,566	2,811	2,823
Employes at coke ovens	1,076	960	104	1,089
Employes in and about mines.....	12,030	12,900	14,354	13,156

From a geological standpoint this State is one of the most important coal States of the Union, having enormous coal measures and a vast theoretical tonnage. But the surface is so extremely broken, and the coal seams carry so great a thickness of cover, that it is likely that Colorado will be one of the last States in which coal mining will be continued on a large scale. Only when the exhaustion of measures elsewhere have brought about an extraordinary price for coal will certain of the deep-lying seams of this State be developed.

WASHINGTON.

The tonnage has been as follows:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	1,775,257	1902.....	2,690,789	1906.....	3,293,098
1899.....	2,029,881	1903.....	3,190,477	1907.....	3,680,532
1900.....	2,418,034	1904.....	2,905,689	1908.....	3,024,943
1901.....	2,504,190	1905.....	2,846,901	1909.....	3,590,639

Of the three Pacific States Washington is the only one producing a large amount of coal. Coal fields in this State are conveniently located with regard to the chief centers of population, and while the coal is of fair quality, there is nevertheless the opportunity for the importation of coal from the adjacent Canadian Province of British Columbia. This coal finds a market in Seattle and Tacoma and the vicinity thereof despite importation duty, but naturally cannot stand rail freight to the interior, save in the case of that going all-rail to Spokane. The superiority of the British Columbia coal is also a factor tending to restrict the shipment of Washington coal to San Francisco, for, despite greater length of voyage, British Columbia coal is delivered in San Francisco in greater volume every year than is the coal from Washington.

The great development of the Pacific Northwest is along other than manufacturing lines, and with an abundance of wood available for household use the coal production has not increased so rapidly as one might anticipate, considering the increase in population, the increase in commerce and the length of time (upwards of 40 years) that some of the fields have been in course of development.

The production of coal in Washington from the time when coal mining began, in 1860, has amounted to 46,133,640 tons, representing an exhaustion of approximately 69,000,000 tons. Estimates of the original coal supply of the State are put down at 20,000 million tons, of which the exhaustion to the close of 1908 represented 0.35 per cent. According to these estimates, the quantity of coal still in the ground at the close of 1908 was 19,931,000,000 tons, 6,600 times the production of 1908 and 4,400 times the exhaustion represented by that output.

In New Zealand there is a quantity of bituminous coal produced, as well as a tonnage of "brown coal," apparently in the nature of lignite, although lignite is also reported as produced. The total output of all these varieties of fuel approaches 2,000,000 tons per annum, but does not increase rapidly, showing a gain of only 29,000 tons for the past year. Bituminous and semi-bituminous coal constitutes something more than one-half of the output, the remainder being contributed by the brown coal and the lignite production.

MISSOURI.

Tonnage of the coal produced in this State during a series of years has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1901.....	3,813,527	1904.....	4,168,308	1907.....	3,997,936
1902.....	4,063,572	1905.....	4,381,956	1908.....	3,400,644
1903.....	4,265,328	1906.....	3,889,659	1909.....	3,787,431

Missouri has a large area of coal fields, producing tonnage ranging in quality from fair to poor. It is a peculiar commercial fact that although this State ranks as one of the large producers of the Union, it supplies no coal tonnage at all to its principal city, St. Louis, which draws all of its nearby supply from Illinois; only anthracite and special brands of bituminous coal being sent in from other points. The coal measures of Missouri are widely scattered, affording an ample supply for local use in the rural sections. Details of the more important counties, showing output for several years, are given below:—

Counties.	Tons 1905	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909
Adair	708,388	428,037	585,491	568,446	453,632
Barton	196,175	267,344	193,418	103,265	217,000
Bates	178,248	160,014	115,285	136,531	117,174
Henry	132,619	122,718	209,652	216,152	279,755
Lafayette	705,917	648,015	717,588	571,908	723,928
Linn	91,593	97,879	117,403	104,240	132,811
Macon	817,093	782,948	1,156,140	851,130	816,906
Platte .....	.....	.....	.....	190,306	203,696
Putnam	84,240	102,973	51,675	54,505	57,145
Randolph	544,118	342,947	72,500	31,266	199,691
Ray	424,874	280,156	337,384	294,230	301,703
Total, inc. small counties.....	4,381,956	3,889,659	3,997,936	3,400,644	3,787,431

The coal fields of Missouri are divided into four sections, or districts—the Northeastern, occupying Putnam and adjacent counties, the coal from which resembles the Centreville, Iowa, product; the North Central, including Macon, Randolph and adjacent counties, the most important coal district of the State; the Central West district, next in importance, including Lafayette and Ray Counties, and the Southwestern district, chiefly embraced in Vernon, Baron and Bates Counties. The coal found here is practically an extension of the Cherokee seam of Kansas.

The original coal supply of Missouri, as estimated, was 40,000 million tons, included within an area of 16,700 square miles. The production of the State, according to the best records available, amounted at the close of 1908 to 100,935,421 short tons, representing an exhaustion of approximately 151,000,000 tons, or 0.4 per cent. of the estimated original supply.

It will be noticed that this State shows no tonnage increase over a period of eight years. This is not due to a lack of coal deposits, nor lack of industrial development, but is probably due to the competition of superior coals from other fields, as well as to the inroads of oil and gas in the western and southwestern part of the State.

In Pennsylvania a tax of three-fourths of a cent a ton on the bituminous production of approximately 140,000,000 tons a year and one cent a ton on the anthracite production of approximately 75,000,000 tons a year would yield a revenue of nearly \$1,750,000.

MARYLAND.

The coal mines of this State are almost entirely in Allegany County, the production of Garrett County, which lies to the west of Allegany, and is the most westerly county of the State, being very much smaller. Maryland is the oldest of the large coal-producing fields shipping to the seaboard, and exploitation has now progressed to the point where little or no tonnage increase is shown, or can be shown, from year to year.

The tonnage in the years named has been, in net tons:—

Years.	Tons.	Years.	Tons.	Years.	Tons.
1898.....	4,674,884	1902.....	5,271,609	1906.....	5,435,453
1899.....	4,807,396	1903.....	4,846,165	1907.....	5,532,628
1900.....	4,024,688	1904.....	4,813,622	1908.....	4,377,093
1901.....	5,113,127	1905.....	5,108,539	1909.....	3,657,214

Distribution of the actual shipments in gross tons has been as below:—

Year.	By B. & O. RR.	C. & O. Canal	Penna. RR.	Total.
1900.....	2,058,094	111,134	829,452	3,176,342
1901.....	2,683,109	193,063	1,430,198	4,332,371
1902.....	2,981,013	192,557	952,168	4,350,954
1903.....	2,745,591	222,571	766,541	3,977,130
1904.....	2,683,847	205,964	887,495	3,908,101
1905.....	3,037,374	175,947	732,314	4,177,393
1906.....	3,109,364	199,505	829,655	4,477,675
1907.....	2,938,970	203,527	536,302	4,370,865
1908.....	2,615,753	190,336	283,234	3,311,449
1909.....	2,281,417	184,034	282,425	2,952,879

Production and shipment by the larger concerns the past two years was as below:—

Company.	B.&O.09.	P.RR.09.	W.Md.09.	Total 08.	Total 09.
Consolidation	1,253,334	94,273	13,154	1,748,233	1,649,457
Black, Sheridan, Wilson	339,193	91,559	1,851	526,509	451,144
Maryland	67	2,367	64,271	96,442	67,932
American	27,618	2,576	.....	77,153	30,333
Georges Creek	114,360	25,588	14,051	206,723	160,376
New Central	18,881	36,937	47,821	107,204	110,368
Piedmont & Georges Creek ...	207,114	1,954	53,083	338,930	266,021
Midland	13,642	6,339	22	22,591	23,710
Piedmont	27,650	6,288	.....	37,954	34,191
Phoenix	35,458	6,680	.....	35,562	43,546

In addition there were 19 concerns that sent out 115,501 tons. A lot of tonnage from workings of the olden time is now being made available. Many of the larger concerns of the district have found it necessary to go into other districts to keep up their tonnage record. The good coal from this State is always in demand, as it is a staple article for blacksmithing and forging in all parts of the country. Its value as a steam fuel is also very well known and credited, but the limited amount available makes it too valuable to pit against other grades, except at higher prices. There are still, however, many industrial concerns willing to pay this extra price.

A sample lot of 350 tons of anthracite, domestic sizes, was shipped to Norway last year by the Reading. It went from Philadelphia on a steamer carrying a cargo of bituminous coal.

ALABAMA.

The tonnage in the years named has been as follows:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	6,504,960	1902.....	10,327,713	1906.....	12,851,775
1899.....	7,484,763	1903.....	11,700,753	1907.....	14,273,748
1900.....	8,247,921	1904.....	11,272,387	1908.....	10,074,591
1901.....	8,970,617	1905.....	11,901,153	1909.....	13,790,268

Chief Mine Inspector Edward Flynn reports the following production of coal by counties:—

Counties.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Jefferson	5,816,164	6,629,392	7,522,740	5,254,817	7,355,571
Walker	2,819,073	2,972,197	3,173,871	2,522,862	2,871,623
Bibb	1,381,675	1,222,534	1,370,677	1,180,228	1,360,821
Tuscaloosa	852,249	1,041,192	1,101,891	714,015	987,165
St. Clair	186,595	219,478	291,201	181,185	364,396
Etowah	184,900	130,660	178,640	10,000	27,200
Shelby	155,869	176,660	260,036	369,344	531,364
Blount	102,009	159,963	159,129	80,396	72,281
Cullman	100,282	115,607	112,000	95,000	112,170
Marion	78,979	60,895	63,050	38,570	41,697
De Kalb	73,802	32,834	18,197	10,844	15,000
Winston	39,509	10,363	22,316	17,330	9,980
Jackson	1,047	.....	.....	.....	.....
Small operators	108,000	80,000	50,000	*50,000	*50,000
Total, net tons	11,901,153	12,851,775	14,273,748	10,974,591	13,790,268

*Includes estimated tonnage from certain counties.

Details of the 1909 production are as follows:—

	Lump.	Steam & Nut.	Slack.	R'n-of-Min.	T't'l.
Bibb	190,792	416,735	55,232	699,032	1,360,821
Blount .....	.....	.....	.....	72,281	72,281
Cullman .....	.....	.....	.....	112,170	112,170
De Kalb .....	.....	.....	.....	15,000	15,000
Etowah .....	.....	.....	.....	27,200	27,200
Jefferson	108,074	8,725	558,248	6,679,524	7,355,571
Marion	19,106	22,275	.....	316	41,697
Shelby	126,492	190,075	2,500	211,297	531,364
St. Clair	51,059	208,541	.....	104,796	364,396
Tuscaloosa	76,641	36,000	80,162	789,362	978,165
Walker	188,622	409,155	133,500	2,040,379	2,871,623
Winston	1,666	1,345	.....	6,969	9,980
Totals	762,452	1,292,851	829,642	10,754,326	13,790,268

Of the entire output about 76 per cent. is mine-run, while less than ten per cent. is slack and about five per cent. lump. The balance of the production is composed of nut and steam sizes.

The production of coke in this State during the year 1909 amounted to 3,047,510 tons. The largest proportion is produced in Jefferson County, 2,576,901 tons, with Tuscaloosa County second, 345,133 tons. Other coke producing counties are Bibb, 6,544 tons, and Walker, 118,932 tons.

James E. Roderick, chief of the Pennsylvania Department of Mines, advocates a tax on coal production for the relief of victims of mine disasters.

KANSAS.

The tonnage in the years named has been as below:—

Years.	Tons.	Years.	Tons	Years.	Tons.	Years.	Tons.
1902....	5,230,433	1904....	6,333,307	1906....	6,024,775	1908....	6,245,508
1903....	5,839,976	1905....	6,423,979	1907....	7,322,449	1909....	6,024,892

Product by counties has been, in recent years:—

County.	1904.	1905.	1906.	1907.	1908.
Cherokee	2,378,624	2,132,589	2,015,107	2,325,744	1,826,081
Crawford	3,399,334	3,729,953	3,415,068	4,380,628	3,917,818
Leavenworth	333,419	348,322	377,846	424,338	348,117
Linn	29,657	30,673	32,652	27,488	11,581
Osage	171,454	157,327	137,746	138,049	126,448
Other counties and small mines	20,819	25,115	46,356	26,202	15,463
Total	6,333,307	6,423,979	6,024,775	7,322,449	6,245,508

The coal produced in this State is mainly consumed within the State for manufacturing, railroad or domestic purposes, although Kansas City, Mo., on the State line, is a very large buyer of Kansas coal.

According to the estimates, the total area of Kansas known to contain workable coal beds is 3,100 square miles, while the area of which little is known, but which may contain workable coal, is estimated at 15,780 square miles. The original coal supply is estimated to have been 7,002 million tons, from which there had been mined, to the close of 1908, 97,421,712 tons. This represents an exhaustion, including the loss in mining, of about 146,000,000 tons. It would thus appear that about 2.1 per cent. of the supply has been exhausted.

BUNKER COAL.

The Department of Commerce and Labor furnishes the following statement of the coal reported as used for bunker purposes by steamers taking same in the United States:

For the year 1907:—

Detail.	Coastwise.	Foreign.	Total.	Price.
Atlantic ports	2,207,543	4,906,681	7,114,224	\$3.12
Gulf ports	98,434	586,225	684,659	3.64
Pacific ports	675,021	261,270	936,291	4.73
Great Lakes	1,801,099	763,372	2,564,471	3.11

For the year 1908:—

Detail.	Coastwise.	Foreign.	Total.	Price.
Atlantic ports	2,010,300	5,085,323	7,095,623	\$3.30
Gulf ports	88,759	527,917	616,676	3.61
Pacific ports	398,998	184,327	583,325	5.13
Great Lakes	1,477,902	758,077	2,235,979	3.14

For the year 1909:—

Detail.	Coastwise.	Foreign.	Total.	Price.
Atlantic ports	2,169,264	5,251,085	7,420,331	\$3.15
Gulf ports	99,966	512,475	612,441	3.62
Pacific ports	422,068	121,985	564,047	4.89
Great Lakes	2,021,393	819,245	2,840,638	2.93

Details of the 1909 business, by ports, appeared in THE COAL TRADE JOURNAL of March 9, 1910.

TEXAS.

The tonnage in the years named has been as below:—

Years.	Tons.	Years.	Tons.	Years.	Tons.
1898.....	686,734	1902.....	901,912	1906.....	1,312,873
1899.....	883,832	1903.....	926,759	1907.....	1,648,069
1900.....	968,373	1904.....	1,195,944	1908.....	1,895,377
1901.....	1,107,953	1905.....	1,200,684	1909.....	1,859,259

Figures for 1909 furnished by Dr. Wm. B. Phillips, Director, Bureau of Economic Geology, University of Texas.

The Department of the Interior collected the following data, which we use in the absence of early local statistics and reports:—

Quality.	1908.	1904.	1905.	1906.	1907.	1908.
Bituminous	659,154	774,315	809,151	839,985	940,337	1,047,407
Lignite	267,605	421,629	391,533	472,888	707,732	847,970

Because of oil competition and the shipment of coal from Oklahoma, the mining industry in Texas does not make much progress.

Estimates of the coal areas of Texas place the bituminous fields known to contain workable coal at 8,200 square miles, with 5,300 square miles of area not so well known but which may contain workable coal. The known lignite areas cover 2,000 square miles, while there are 53,000 square miles, extending from Sabine and Red Rivers on the east and north to the Rio Grande on the southwest, which may contain workable beds of lignite. The estimated original supply of bituminous coal in Texas is placed at 8,000 million tons, and of lignite at 23,000 million tons, making a total of 31,000 million tons as the original supply. From this there had been produced to the close of 1908 a total of 16,340,325 short tons, which represents an exhaustion of approximately 25,000,000 tons, the exhaustion representing 0.08 per cent. of the original supply. The supply left in the ground at the close of 1908 would be equal to 16,300 times the production of that year.

CINCINNATI STATISTICS.

The statistics in regard to the trade of Cincinnati are furnished by the Chamber of Commerce, and are expressed in bushels:

Receipts.	1905.	1906.	1907.	1908.	1909.
Pittsburgh	40,689,000	31,118,000	30,726,000	13,397,000	20,765,000
Kanawha	31,936,000	23,650,000	33,495,000	21,689,000	25,252,000
Other	310,000	1,970,000	426,000	679,000	39,000
Rail, Bituminous ...	87,885,000	116,426,000	84,679,000	84,017,000	89,100,000
Rail, Anthracite ...	545,000	792,000	654,000	855,000	471,000
Total	161,365,000	173,957,000	149,980,000	120,637,000	135,627,000
Net tons	5,791,700	6,265,000	5,401,927	4,346,000	5,425,080
Reshipments	58,974,000	98,775,000	71,414,000	64,234,000	69,938,000
Coke received	4,580,000	5,502,000	4,577,000	2,428,000	3,260,000
Coke made locally..	7,200,000	8,000,000	9,233,000	7,260,000	4,397,000

Calculations made on the basis of 25 bushels to the ton.

Of the large exports of coal from Great Britain much the greater portion is shipped from the Bristol Channel ports, which are located near to the Welsh coal fields, and from the northeastern ports, in the neighborhood of Newcastle.

THE COAL TRADE OF OKLAHOMA.

The coal tonnage of Oklahoma for the fiscal year ending June 30, 1909, is estimated at 2,790,000 tons, which is practically the same as the output of the preceding year. Owing to a change in mine inspectors, exact figures for the entire year are not available, and the estimates are based on the report of Chief Mine Inspector Peter Hanraty for the eight months November 30, 1908, to June 30, 1909.

By far the most serious obstacle to the prosperity of the Oklahoma coal producers, and the feature that will give them the greatest trouble in the next few years, is the growing use of oil and gas within the State, as well as in neighboring States to which Oklahoma coal has been shipped. While recent discoveries of these forms of fuel have naturally led to increased production and consumption, many power users have been prompted to discard coal by reason of the uncertainty of the supply arising from the periodical strikes in the Southwest.

The necessity for laying in stocks to tide over periods of idleness has been a source of expense to consumers, as prices are generally on an advancing scale for two or three months preceding a strike, and there is the loss of interest on investment and other factors that make the storing of large quantities of coal a burden. This has led manufacturers to welcome oil and gas as a substitute for coal, and the effect is seen in the declining coal production of certain sections of the Southwest.

The greater part of the Oklahoma coal output is used for railroad and domestic purposes. The mines of the State have a capacity of about 4,500,000 tons a year, but from the present outlook it will probably be a number of years before that tonnage is achieved.

Oklahoma coke manufacturers are gradually being crowded out of certain markets where they formerly shipped quite a substantial tonnage. A growing tonnage of coke is being made both in Mexico and in New Mexico, and competition from this direction is becoming more severe. It is said that during the past year or two considerable Pennsylvania coke has also reached markets that formerly depended upon Oklahoma ovens.

The output of coal in the State of Oklahoma for the years ending June 30, 1907, 1908, and 1909, was:—

Company.	1907.	1908.	1909.*
Bolen-Darnall Coal Co.	62,144	54,751	54,000
Chelsea C. & C. Co. ....	.....	.....	90,000
Eastern C. & M. Co.	55,972	51,081	40,000
Great Western C. & C. Co.	141,341	129,808	161,000
Hailey-Ola Coal Co.	192,735	157,381	180,000
Kali-Inla Coal Co.	71,847	62,795	60,000
McAlester Coal & Mineral Co.	84,087	80,158	40,000
McAlester C. M. Co.	85,120	78,431	105,000
McAlester-Edwards Coal Co.	34,464	52,686	90,000
Milby & Dow C. & M. Co.	106,438	101,606	90,000
Missouri, Kansas & Texas Coal Co.	86,509	69,756	100,000
M. K. & T. Ry. Co. Coal Dept.	188,441	194,704	280,000
Osage C. & M. Co.	346,000	238,119	120,000
Rock Island C. M. Co.	377,906	378,791	400,000
San Bois Coal Co.	240,763	209,796	120,000
Sequoyah C. & M. Co.	52,450	33,643	54,000
Western C. & M. Co.	377,718	328,271	300,000
Total, including small mines	3,062,651	2,778,946	2,790,000

*Figures for 1909 are estimates, based on Mine Inspector's report covering last eight months of fiscal year.

UTAH.

Utah is growing as a coal producer, largely on account of the development of transportation and mining interests in Rocky Mountain territory. The railroads are very large consumers, and the smelters and other works appertaining to gold and silver mines call for considerable tonnage. The Pleasant Valley Coal Co., which is supposed to be associated with the Denver & Rio Grande interests, continues to be the chief producer in the State, its four large mines producing a very large fraction of the total output.

The tonnage in the years named has been:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	593,709	1902.....	1,574,521	1906.....	1,772,551
1899.....	786,049	1903.....	1,681,409	1907.....	1,947,607
1900.....	1,147,027	1904.....	1,493,027	1908.....	1,846,792
1901.....	1,322,614	1905.....	1,332,272	1909.....	2,322,209

The development and growth of the industry in this State is shown also in the following tabulation furnished by the U. S. Geological Survey:—

Year.	Shipment.	Local.	At mines.	For Coke.	Total.
1900.....	1,082,723	17,355	18,650	28,299	1,147,027
1901.....	1,272,848	18,333	30,446	987	1,322,614
1902.....	1,277,343	21,531	45,432	230,215	1,574,521
1903.....	1,301,755	26,354	46,204	307,096	1,681,409
1904.....	1,064,177	24,532	54,537	349,781	1,493,027
1905.....	1,011,914	22,522	50,351	247,585	1,332,372
1906.....	1,142,127	21,004	57,012	552,408	1,772,551
1907.....	1,287,649	22,149	65,368	572,441	1,947,607
1908.....	1,527,165	28,169	61,789	229,141	1,846,792

The production of coke in 1909 was 180,969 tons compared with 134,195 tons in 1908.

The areas in Utah known to contain workable beds of coal are estimated to aggregate 13,130 square miles, while there are 2,000 square miles of which little is known but which may contain workable beds of coal. The original contents of these fields are estimated by Mr. Campbell to have been 196,458 million tons of coal. The first production of coal in Utah was reported in the census year of 1870, when 5,800 short tons were mined. In 1880 the Census reported a total of 14,748 tons, although this was undoubtedly an underestimate. In 1890 the production had increased to 318,159 tons. It reached an amount exceeding 1,000,000 tons for the first time in 1900 and reached its maximum output of 1,947,607 tons in 1907.

Total production since mining began in 1870 is shown by investigation to have amounted to 20,683,974 tons. Upon the basis of one ton of coal being lost for every two tons of coal mined and marketed, the exhaustion to the close of 1908 has amounted approximately to 31,000,000 tons, or 0.016 per cent. of the original supply.

It is stated that the Province of Ontario contains 18,394 acres of peat bog five feet in depth or over. Last year a small quantity of peat was manufactured in Victoria County, in that Province, as an experiment for the Department of Mines. Thus far work looking to the utilization of the peat deposits have been disappointing in results, but a satisfactory conclusion is still looked for.

INDIANA.

The coal mining industry of Indiana has developed greatly in the last ten years, largely because of increased shipments from Greene and Sullivan Counties.

It had long been known that Indiana possessed great coal resources, but early development was rather slow and for several years, until 1897, in fact, tonnage varied between three and four million tons, without notable increase. The development of coal requirements in the West and Northwest following the period of about 1900-1901 increased Indiana's markets. Previously much of the territory west and northwest of Chicago was supplied by shipments up the lakes, if not supplied by local coal mines, and of course Indiana coal has never been shipped east, because of the coal available in Ohio. The decrease of gas pressure, and the exhaustion of gas in some fields has, of course, added to the amount of coal required for local use in the State. Very large investments in Indiana properties have been made by important corporations, and it is expected that developments will continue on an active scale.

The tonnage in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	4,920,753	1902.....	9,446,424	1906.....	12,092,560
1899.....	5,839,713	1903.....	10,794,692	1907.....	13,985,713
1900.....	6,484,086	1904.....	10,934,379	1908.....	12,314,890
1901.....	9,918,225	1905.....	11,895,252	1909.....	13,692,089

Reports furnished to the U. S. Geological Survey show the output by counties in recent years to have been:—

County.	1903.	1904.	1905.	1906.	1907.	1908.
Clay	1,242,958	960,094	781,574	1,101,228	1,266,507	863,649
Daviess	183,692	143,877	101,429	135,985	120,996	77,034
Dubois	8,546	13,833	7,200	14,700	8,460	12,320
Fountain ...	18,660	41,452	72,655	84,469	41,270	4,800
Gibson	81,946	98,257	99,322	142,444	207,472	188,500
Greene	2,303,512	2,532,610	2,458,665	2,307,486	2,773,944	2,361,404
Knox	177,046	173,406	293,480	333,833	374,099	428,821
Parke	989,983	924,001	750,314	707,027	655,312	644,062
Perry	24,941	26,218	17,018	13,261	17,965	10,601
Pike	505,564	408,391	452,396	497,957	516,418	460,180
Spencer	19,948	17,511	16,935	19,256	25,916	13,206
Sullivan	1,788,358	2,061,212	2,571,818	2,415,847	2,897,840	2,602,543
Vanderburg.	241,088	258,254	300,112	302,919	317,371	263,171
Vermilion ..	915,171	1,068,427	1,302,667	1,342,478	1,442,103	1,142,802
Vigo	1,826,393	1,756,250	2,189,603	2,197,459	2,724,743	2,735,399
Warrick ...	435,797	416,311	447,576	447,995	568,522	482,613
Various	31,089	34,275	32,488	28,216	26,775	23,785
Tot. net tons	10,794,692	10,934,379	11,895,252	12,092,560	13,985,713	12,314,890

Consolidation of coal mining interests has perhaps made more progress in Indiana than in any other western State, so that at the present time a large proportion of the coal is mined by comparatively few concerns.

Important developments from a trade standpoint are anticipated from the building of the new industrial city of Gary, on the lake front of the northern boundary of this State, affording a most important home market.

The production for the year was 13,692,089 tons. Of this, 12,973,876 was bituminous, and 718,213 was block coal. Fifty-seven per cent. of the total production was consumed in the State, a gain over 1908 of one per cent. The gain per cent. in bituminous coal produced was 16, while the block production fell off 18½ per cent.

ARKANSAS.

The tonnage in the years named has been as below:—

Year.	Tons.	Year.	Tons.	Year.	Tons.
1898.....	1,205,479	1902.....	2,125,730	1906.....	1,864,268
1899.....	843,554	1903.....	2,229,172	1907.....	2,670,438
1900.....	1,447,945	1904.....	2,009,451	1908.....	2,078,357
1901.....	1,816,136	1905.....	1,934,673	1909.....	2,100,000

Arkansas has long been a producer of coal on a moderate basis but does not show the same degree of growth as some other States. Oil in Texas and larger and perhaps better coal fields in Oklahoma tend to restrict the output of this State. The coal mined is used to a large extent for railroad purposes, the Gould lines being considerably interested in the production of fuel for their own use, as well as, to a less extent, for the commercial trade.

Details show the production by counties to have been as follows, in the years named:—

County.	1903.	1904.	1905.	1906.	1907.	1908.
Johnson	198,999	217,667	216,260	229,477	243,283	.....
Franklin	394,884	408,494	678,990	339,449	423,452	*400,995
Sebastian	1,528,888	1,234,794	1,189,455	1,278,497	1,875,386	1,580,778
Logan	27,286	35,300	26,090	26,647	29,970	30,723
Pope	48,836	51,488	39,685	34,776	47,753	35,481
Other counties ..	30,279	61,708	44,825	34,914	50,594	30,380
Totals	2,229,172	2,009,451	1,934,673	1,864,268	2,670,438	2,078,357

*Includes Johnson County.

The total original supply of coal in Arkansas was 1,887 million tons, of which 1,797,000,000 were bituminous and semi-anthracite and 90,000,000 tons were lignite. The lignite areas have not been developed and no production has been reported from them. From the bituminous and semi-anthracite areas there have been mined, to the close of 1908, 25,834,758 tons, representing an exhaustion, including waste, of approximately 39,000,000 tons, or a little more than two per cent. of the estimated original contents of the Arkansas fields. Of the total amount of coal produced in Arkansas from the time when mining began, eight per cent. was mined in 1908, in which year the output also represented about 0.11 per cent. of the estimated original supply.

KEEPING ACCOUNT OF BOILER ROOM COSTS.

If factory owners desire to know just what their fuel and operation of boiler plant are costing each month we commend the plan which is in use at one of the newer hotels in New York, where, for the inspection of the employes, records are kept, one of which is as follows: "March, 1909. Weight of coal as fired, 1,394,600 lbs. Ash and refuse, 287,550 lbs. Weight of water evaporated, 11,952,400 lbs. Number of horsepower, 362,115. Cost of coal, \$1,712.64. Percentage of waste, 20.61. Cost of removing ashes, \$95.85. Wages, \$516.56. Cost per 100 B. H. P. at header, 68.51 cents."

A bonus over and above the regular wage is paid whenever there is shown a marked percentage of economy, and promotions are made from among the men in the force who have a record to warrant it, while outside men are not allowed to deprive old and faithful employes of advancement.

MONTREAL, P. Q.

Coal is imported from the United States, from Great Britain and from the Nova Scotia districts. Anthracite is free of duty, while bituminous from abroad (either United States or Great Britain) is subject to 53 cents per ton duty.

A comparative statement, in detail, shows the following particulars:—

Receipts.	1904.	1905.	1906.	1907.	1908.	1909.
Anthracite	200,000	220,000	225,000	271,315	305,810	262,240
Bituminous	140,942	128,361	128,900	197,732	197,732	149,820
Nova Scotia	1,240,169	1,223,847	1,489,442	1,187,694	1,556,157	1,020,557
Total	1,581,111	1,572,208	1,843,342	1,656,741	2,059,699	1,432,617

In "bituminous" is included any soft coal from England or Scotland, as well as from the United States.

Of the Nova Scotia receipts, the Dominion Coal Co. supplied 1,020,144 tons in 1905, 1,043,493 tons in 1906, 1,075,469 tons in 1907, 1,345,000 tons in 1908, and 820,813 tons in 1909.

Bituminous tonnage includes bituminous "dust."

The receipts of Nova Scotia coal at Montreal by rail during 1909 were practically nothing. None of the larger companies shipped any coal into the city in this way, and it cannot be said that any of the smaller companies did. The Cumberland Ry. & Coal Co. usually shipping to Montreal by rail in the winter, shipped no coal last year as the mines were closed down in July on account of a strike. There was in fact quite a diminution in the receipts of Nova Scotia coal on account of the strike.

To make up the shortage, a quantity of coal was shipped by water to Portland, Me., during the winter by the Dominion Coal Co. and sent thence by rail to Montreal. This tonnage will be included in the receipts for 1910.

MACHINE MINED COAL IN PENNSYLVANIA.

Production of bituminous coal by pick mining, compressed air and electric power, 1902-1908 inclusive:—

Years.	Pick.	Com. air.	Electrical.	Total.
1902.....	62,750,098	17,943,432	18,410,592	98,529,122
1903.....	65,162,906	20,106,840	18,444,236	103,713,983
1904.....	61,096,511	20,904,575	17,599,081	99,600,167
1905.....	68,900,085	26,805,191	23,656,238	119,361,514
1906.....	75,117,053	24,988,171	29,427,765	129,532,989
1907.....	89,443,116	29,273,217	30,842,714	149,559,047
1908.....	63,549,572	23,926,398	27,461,405	114,937,375

From report of Hon. James E. Roderick, Chief, Department of Mines of Pennsylvania.

NOVA SCOTIA SHIPMENTS ON ST. LAWRENCE.

Company	Montreal	Sorel	Three Rivers	Quebec	Total
Dominion Coal Co.....	820,813	1,094	57,110	79,117	958,134
Nova Scotia Steel & Coal Co.....	122,039	24,585	3,800	141,400	291,824
Inverness Ry. & Coal Co.....	14,317	.....	.....	50,768	65,085
Port Hood Coal Co.....	2,400	4,100	.....	4,000	10,500
Intercolonial C.M. Co.....	35,071	.....	.....	.....	35,071
Acadia Coal Co.....	16,902	.....	.....	.....	16,902
Scotch and English.....	9,015	.....	6,000	.....	15,015
Total	1,020,557	29,779	66,910	275,285	1,392,531

COAL DUMPING MACHINES AT OHIO LAKE PORTS.

Location.	Railroads.	Operated by
Cleveland	Pennsylvania	Pittsburgh Coal Co.
Cleveland	Pennsylvania	James W. Ellsworth & Co.
Cleveland	Pennsylvania	Lake Erie Dock Co.
Cleveland	Baltimore & Ohio	Pittsburgh Coal Co.
Cleveland	Erie	Pittsburgh Coal Co.
Cleveland	Wheeling & Lake Erie	Wheeling & Lake Erie.
Ashtabula	Pennsylvania	M. A. Hanna & Co.
Ashtabula	Lake Shore & Mich. So.	Pittsburgh Coal Co.
Ashtabula	Lake Shore & Mich. So.	Pickands, Mather & Co.
Fairport	Baltimore & Ohio	Pittsburgh Coal Co.
Lorain (2)	Baltimore & Ohio	Baltimore & Ohio RR. Co.
Sandusky	Baltimore & Ohio	Baltimore & Ohio RR. Co.
Sandusky	Pennsylvania	M. A. Hanna & Co.
Huron (2)	Wheel. & Lake Erie.	Wheel. & Lake Erie RR. Co.
Toledo (2)	Hocking Valley	Hocking Valley Ry. Co.
Toledo	Cin., Hamilton & Dayton	C. H. & D. RR.
Erie	Pennsylvania	Pittsburgh Coal Co.
Conneaut	Pitts., Bess. & Lake Erie	Conneaut Dock Co.

The machines referred to will load, on an average, 800 tons of coal per hour, so that the capacity of any particular dock or port can be easily approximated.

The only important dock not equipped with modern machines is that of the Baltimore & Ohio at Sandusky, a trestle which is equipped with "whirlies" or swinging buckets.

BUSINESS OF COLORADO FUEL & IRON CO.

The chief traffic statistics of the Colorado Fuel & Iron Co. for fiscal years ending June 30th, compare as follows:—

	Tons 1904.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Coal	1,923,137	4,504,750	5,056,377	4,844,460	4,276,095	4,094,352
Coke	294,551	948,553	1,095,133	992,661	789,989	645,545
Iron ore	181,506	493,570	*803,383	893,453	647,269	580,784
Limestone	108,762	213,007	369,921	417,611	391,128	363,975
Iron and steel	744,333	1,444,177	1,900,168	1,994,410	2,077,230	1,682,794

*Exclusive of 72,992 tons purchased from the Lake Superior region.

CENTRAL RR. OF NEW JERSEY ANTHRACITE TONNAGES.

Received from.	Tons 1905.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Wyoming region	5,068,302	4,128,632	4,980,564	5,124,045	4,759,046
Upper Lehigh region	321,353	237,401	308,212	310,236	255,004
Beaver Meadow region	569,997	624,775	698,344	652,811	423,546
Beaver Brook region		78,086	78,550	121,186	120,189
Schuylkill region	87,840	33,697	132,021	112,725	197,142
Mauch Chunk region	2,041,271	2,062,135	2,528,811	2,260,721	2,290,456
Connecting roads	61,518	49,403	52,847	105,104	247,664
Total coal carried	8,233,995	7,214,129	8,779,349	8,686,828	8,293,447

D., L. & W. RR. CO'S ANNUAL FINANCIAL STATEMENT.

Earnings for calendar year:—

	1905.	1906.	1907.	1908.	1909.
Trans. of coal.....	\$13,993,584	\$12,902,851	\$14,361,461	\$14,558,702	\$14,464,221
of misc. freight	9,230,787	10,342,423	12,235,807	9,850,008	11,393,859
of passengers	5,529,001	6,216,624	6,757,596	6,449,002	6,825,430
of mail	194,775	207,473	202,180	195,885	191,668
of express	658,908	691,203	741,800	695,282	711,812
of milk	707,077	767,705	786,654	776,753	795,912
misc. sources	543,302	655,433	955,708	129,574	128,304
trans. by ferries..	1,093,626	1,179,165	1,223,309	.....	.....
Total earnings	31,951,063	32,962,880	37,264,472	32,898,495	34,815,010
Total expenses	17,827,974	18,899,441	21,539,738	18,623,654	18,745,509
Net earn. from opera'n	14,123,088	14,063,438	15,724,733	14,430,739	16,434,186
Less taxes	1,000,085	1,573,000	1,349,700	1,180,800	1,394,500
Balance	13,123,003	12,490,438	14,375,033	13,249,939	15,039,686
Total income	17,061,966	16,989,812	19,540,188	18,930,190	23,513,595
Less charges & impr..	9,123,537	11,162,741	9,450,861	8,233,065	7,534,399
Total net income.....	7,938,428	5,827,071	10,089,327	10,697,125	15,979,195
Less divid's on stock.	5,240,000	5,240,000	5,240,000	5,240,000	5,831,586
Balance surplus	2,698,428	587,071	4,849,327	5,457,125	10,147,609

An extra dividend of ten per cent. was paid December 16, 1905, December 20, 1906, December 16, 1907, December 15, 1908, and December 22, 1909.

GROWTH OF BRITISH EXPORT TRADE.

In the last sixty-odd years the British export coal trade has increased enormously, as shown by the following table:—

Countries.	1842, tons.	1890, tons.	1900, tons.	1908, tons.	1909, tons.
France	515,975	5,093,329	8,314,697	10,415,430	10,408,010
Germany	170,038	3,350,512	5,938,178	9,646,868	9,671,992
Russia	83,582	1,493,189	3,116,099	3,414,103	3,330,890
Sweden	37,995	2,313,817	2,968,579	4,370,468	3,965,824
Norway	18,800		1,342,759	1,940,913	1,896,292
Denmark	145,286	1,325,585	2,056,990	2,810,754	2,864,891
Belgium	3,882	.....	1,152,109	1,751,251	1,644,951
Holland	184,434	527,460	1,812,257	2,160,314	2,320,450
Spain	53,548	1,905,618	1,695,820	2,537,331	2,610,256
Italy	46,927	3,910,847	5,115,125	8,742,634	9,081,667
Portugal	33,066	627,529	569,901	1,094,723	1,139,158
Turkey and Greece	40,231	419,787	367,121	955,846	972,086
Totals	1,329,764	20,994,673	34,449,635	65,180,649	65,694,267

THE IMPORTANCE OF WATER SUPPLY.

The quantity of water needed at a mine bears no fixed ratio to tonnage. It depends upon the depth and the pitch of the seams, which affect both the power required for hoisting and the amount of water that has to be pumped and the distance that it has to be elevated. The wetness of the overlying strata has also a bearing on the matter. Suffice it to say that the quantity required for steam-making is large, as is indicated by the fact that taking the anthracite region as a whole about fifteen per cent. of the coal hoisted is used for colliery purposes.

**THE STANDARD
OF EXCELLENCE**



**A SYMBOL OF
QUALITY**

Our registered trade-mark covering THE CELEBRATED C. C. B. POCAHONTAS SMOKELESS COAL corresponds to the Sterling Stamp on Silver, as the United States Geological Survey has made it the STANDARD FOR GRADING ALL STEAM FUEL.

C. C. B. POCAHONTAS SMOKELESS



Is the only American Coal that has been officially indorsed by THE GOVERNMENTS of Great Britain, Germany and Austria, and is the favorite fuel with the United States Navy, which has used it in large quantities for many years.

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GENERATION OF STEAM
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Castner, Curran & Bullitt

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BRANCH OFFICES:

1 Broadway, New York City.

Neave Building, Cincinnati, Ohio.

Citizens' Bank Bldg., Norfolk, Va.

Old Colony Building, Chicago, Ill.

Strickland Building, Roanoke, Va.

EUROPEAN AGENTS:

Hull, Blyth & Company, 1 Lloyd's Avenue, London, E. C., England.

CANADIAN COAL AND COKE PRODUCTION, 1909.

The total coal production in Canada in 1909, comprising sales and shipments, colliery consumption and coal used in making coke, is estimated at 10,411,955 net tons. This is a smaller production than in either of the two preceding years. The western provinces each show an increased production of coal in 1909, but not sufficient to counteract the reduced output in Nova Scotia, which resulted from the miners' strike. The aggregate decrease for the whole of Canada was about 474,356 tons, or 4.36 per cent., while Nova Scotia alone showed a falling off of 968,789 short tons, or 14.56 per cent.; the aggregate increase in the western provinces being 505,404 tons, or 12.11 per cent.

Of the total production Nova Scotia contributed 54.5 per cent.; Saskatchewan and Alberta 20.5 per cent. and British Columbia 24.3 per cent.

The production by provinces was approximately as follows:—

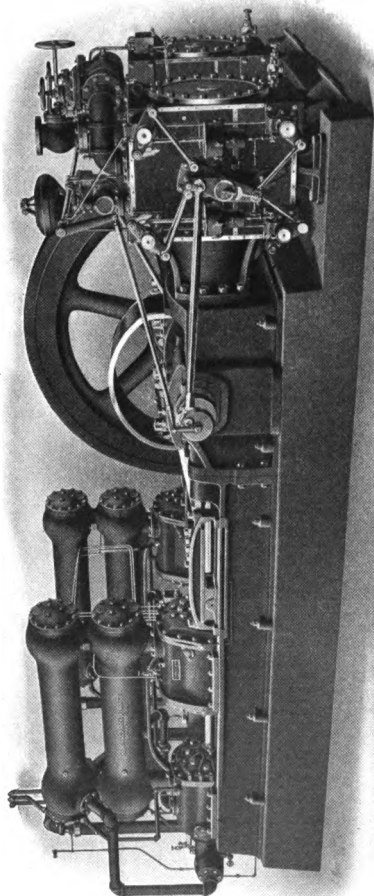
Province.	Tons 1907.	Tons 1908.	Tons 1909.
Nova Scotia	6,354,133	6,652,539	5,683,750
British Columbia	2,364,898	2,333,708	2,538,004
Alberta	1,591,579	1,685,661	1,978,843
Saskatchewan	151,232	150,556	163,329
New Brunswick	34,584	60,000	49,029
Yukon Territory	15,000	3,847	.....
Totals	10,511,426	10,886,311	10,411,955

Total production of coke for the year 1909 was about 875,000 net tons, being a slight increase over the production in 1908. At the ovens of the Dominion Iron & Steel Co. at Sydney a quantity of imported coal was used, the supply of domestic coal being insufficient on account of the strike. The Atikokan Iron Co. at Port Arthur uses imported coal exclusively. At all other ovens Canadian coal is used. At the end of the year there were in Nova Scotia 670 ovens in operation, 64 idle and 120 building. In Alberta 226 were in operation and 40 idle and in British Columbia 767 in operation and 753 idle. The ovens of the Dominion Iron & Steel Co. are of the Otto Hoffman by-product type and there were recovered as by-products 4,016,824 gallons of tar and 3,351 net tons of sulphate of ammonia.

COAL REMAINING IN PENNSYLVANIA.

M. R. Campbell, of the United States Geological Survey, places the amount of coal originally in the anthracite fields of Pennsylvania at 21,000 million tons and in the bituminous fields at 112,574 million tons. The percentage of waste in anthracite mining has been materially reduced by modern methods, but it is probable that the exhaustion to the close of 1908 has actually doubled the production, amounting to, say, 4,030 million tons. This would leave still in the ground approximately 16,970 million tons, which would be capable of producing, at the rate of one ton of coal lost for each ton mined, 8,425 million tons, or approximately 102 times the anthracite produced in 1908.

If for the bituminous production one ton of coal is estimated as lost for every two tons mined, the exhaustion to the close of 1908 has been 2,945 million tons, which would leave still in the ground more than 109,000 million tons, about 930 times the production of 1908. In other words, if the exhaustion is one and one-half times the production of bituminous coal in Pennsylvania at the rate of production in 1908 the supply would last approximately 620 years.



AIR COMPRESSORS

**THE NORWALK IRON WORKS CO.
SOUTH NORWALK, CONN.**

GIRARD ESTATE COAL PRODUCTION.

The report of Heber S. Thompson, mining engineer and agent of the Girard Estate, shows that, counting pea as small coal, the shipments of large and small coal from the Girard Estate have been as follows:—

	— Large Coal —		— Small Coal —	
	Tons.	P. ct.	Tons.	P. ct.
In 1909	1,018,674	57.93	739,711	42.07
“ 1908	1,098,752	56.03	862,138	43.97
“ 1907	1,227,878	58.44	873,321	41.56
“ 1906	977,067	57.13	733,203	42.87
“ 1905	1,068,540	58.62	754,358	41.38
“ 1900	627,093	57.41	465,263	42.59
“ 1895	1,056,653	70.95	432,705	29.05
“ 1890	1,042,215	79.37	270,881	20.63
“ 1885	919,138	80.55	221,996	19.45
“ 1880	1,104,097	88.21	147,588	11.79
“ 1875	644,557	91.48	59,987	8.52
“ 1870	455,168	96.43	16,830	3.57
“ 1865	240,466	100.00	.....	.....

Excluding the coal reclaimed from culm banks, the proportions of large and small coal have been as follows:—

	— Large Coal —		— Small Coal —	
	Tons.	P. ct.	Tons.	P. ct.
In 1909	1,008,076	62.59	602,578	37.41
“ 1908	1,080,788	64.08	632,467	36.92
“ 1907	1,204,955	63.97	678,823	36.03
“ 1906	956,670	63.44	551,396	36.56
“ 1905	1,054,403	62.99	619,588	37.01
“ 1900	625,422	63.31	362,227	36.69
“ 1895	1,056,653	70.95	432,705	29.05
“ 1890	1,041,340	70.72	264,849	20.28

For the last ten years the proportions of large and small sizes made from freshly-mined coal have varied but little.

HEAVY VESSEL LOSSES ON THE GREAT LAKES.

Lake traffic during the past season has been disastrous in amount of financial loss and also number of lives lost. It is likely that 1909 was the worst season in the history of lake transportation with the single exception of 1905. Although traffic on the lakes is suspended during the most stormy months of the year, wrecks during the past season cost more than 100 lives, and the money damage amounted to \$2,000,000. The trouble seems to be two-fold: storms arise on the lakes more quickly than on the ocean, and lake vessels are not so strongly built as are the craft that navigate the Atlantic. Owners seem disposed to take a chance. Normal conditions are more pacific than in ocean navigation, and as long as the weather is calm a light-built boat will suffice. When a storm comes up, trouble is sure to result.

The coastwise shipments of coal from the port of Tacoma, Wash., for the year 1909 amounted to 60,189 tons compared with 96,728 tons the year previous.

The Delaware, Lackawanna & Western Coal Company

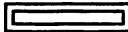
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The Delaware, Lackawanna
& Western Railroad Co's

Scranton Anthracite

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MILWAUKEE-WESTERN FUEL Co., Sales Agents,
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Fisher Building, Chicago, Ill.
Duluth, Minn. Superior, Wis.

RECEIPTS OF COAL AT U. S. LAKE PORTS.

Ports.	Anth.	Bit.	1909.	1908.
Alpena	1,730	91,065	92,795	36,168
Ashland	27,576	463,302	490,878	468,513
Buffalo		57,781	57,781	55,668
Chicago	780,501	501,780	1,282,281	1,577,179
Detour	83	212,030	212,113	81,599
Detroit		28,646	28,646	24,950
Dollar Bay	1,969	157,158	159,127	140,691
Duluth	137,980	1,452,126	1,590,106	1,705,869
Escanada	19,004	445,828	464,832	421,141
Gladstone	5,517	147,005	152,522	254,551
Grand Traverse Bay		56,201	56,201	.....
Green Bay	87,068	350,970	438,038	430,826
Hancock-Houghton	62,640	451,525	514,165	583,053
Kenosha	17,194	17,840	35,034	34,620
Kewaunee	2,231	37,900	40,221	46,962
Lake Linden	11,721	374,991	386,712	362,435
Ludington	9,200	8,792	17,992	18,137
Manistique	7,401	66,821	74,222	94,198
Manitowoc	81,215	548,569	629,784	591,592
Marine City	556	46,471	47,027	54,601
Marquette	32,682	294,373	327,055	282,580
Menominee	3,587	66,330	69,917	67,017
Ogdensburg	13,966	249,027	262,993	191,135
Milwaukee	862,449	3,177,987	4,040,436	3,810,596
Point Mills		16,523	16,523	9,297
Port Huron	4,353	106,399	110,752	118,547
Racine	42,717	75,262	117,979	115,700
St. Clair		56,289	56,289	50,251
Sault Ste. Marie	14,532	138,382	152,914	108,740
Sheboygan	204,221	232,533	436,754	547,545
Superior	1,002,201	3,050,534	4,052,735	4,207,823
Two Harbors		297,978	297,978	223,164
Two Rivers	4,047	16,621	20,668	20,577
Washburn	4,783	140,342	145,125	141,149
Waukegan	119,215	23,721	142,936	160,419
Wyandotte		34,450	34,450	.....
Total, 1909.....	3,610,863	13,628,249	17,239,112	
1908.....	4,186,401	13,174,394	17,360,795	
1907.....	4,062,184	15,406,026	19,468,210	
1906.....	2,980,606	12,578,008	15,558,614	

Totals include ports doing a tonnage of less than 15,000 tons.
 Figures do not include coal received by rail. Furnished by Department of Commerce and Labor from returns of Collectors of Customs.

PITTSBURGH, SHAWMUT & NORTHERN R.R. TONNAGES.

The tonnage of bituminous coal carried over the Pittsburgh, Shawmut & Northern R.R., during the calendar year 1909 amounted to 966,931 tons, compared with 793,892 tons during the preceding year, an increase of 173,089 tons. The coke tonnage shipped over this road was small, amounting to only 19,420 tons compared with 21,866 tons during 1908.

STAPLES COAL CO.

Anthracite



Bituminous

COAL

IN CARGO OR CARLOAD LOTS.

New England Agent for

**Berwind-White Coal Mining Co. and
American Coal Co.**

**Eureka, New River, Pocahontas and Georges Creek
Cumberland Coals**

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Fall River, Mass.	Warren, R. I.
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The Consolidation Coal Co.

INCORPORATED

Georges Creek Big Vein Cumberland Coal

Mined in the Georges Creek Cumberland Region of Maryland. Unequalled for general steam purposes. Largely used by the United States Navy. Practically smokeless. The standard smelting coal of the United States.

Fairmont Gas, Steam and Domestic Coal

Mined from the Pittsburg Seam in the Fairmont Region of West Virginia. A superior locomotive fuel. Excellent for gas making, by-product coke, cement and lime burning, general steam and domestic business.

FAIRMONT FOUNDRY AND FURNACE COKES

Somerset Smokeless Coal

Mined in Somerset Region, Somerset County, Pa. Largely used by Rolling Mills, Railroads, Steamships and Factories.

SOMERSET FOUNDRY AND FURNACE COKES

Millers Creek Block Coal

Mined on Millers Creek, Big Sandy River, Kentucky. A bituminous coal, low in ash, of particular hardness, and adapted to winter storage without disintegration. Will deliver in sizes with less fine than any other coal. Used for domestic, producer gas and general steam purposes. Prepared in all sizes.

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OFFICE OF WESTERN MANAGER
Ford Building, Detroit, Michigan

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NORTH WESTERN FUEL COMPANY

NORTHWESTERN AND CHICAGO AGENTS

Foreign Representatives - SANDERS & COMPANY - 110 Cannon St., London

OPERATIONS OF PITTSBURGH COAL CO.

The annual reports of the Pittsburgh Coal Co. for the several years ending December 31st are as follows:—

	1905.	1906.	1907.	1908.	1909.
Mining profits	\$3,255,358	\$5,297,123	\$5,731,983	\$3,024,921	\$3,448,394
Deduct—					
Depletion allowance ...	593,075	743,020	725,937	564,062	697,968
Depreciation allowance.	830,271	1,194,094	964,809	952,345	927,870
Total deductions ..	1,423,346	1,937,114	1,690,746	1,516,408	1,625,838
Net earnings	1,832,012	3,360,008	4,041,237	1,508,513	1,822,556
Interest	1,207,087	1,167,240	1,082,643	1,042,797	1,012,457
Balance	624,925	2,192,768	2,958,592	465,716	810,098
Dividends	343,273	.....	.....	.....	338,397
Surplus	281,652	2,192,768	2,958,592	433,283	471,701

This is the largest coal producing company in the United States. Details in regard to its output during the years since organization appear below:—

Period.	Pittsburgh District Coal.	Hocking District Coal.	Total in Tons of 2000 lbs. each.	Pittsburgh District Coke.
Sixteen months to December 31, 1900.....	18,596,171	.....	18,596,171	30,004
Year 1901	13,019,047	.....	13,019,047	19,987
Year 1902	14,389,045	1,381,996	15,771,041	67,730
Year 1903	15,785,519	1,480,350	17,265,869	149,842
Year 1904	13,949,113	1,451,505	15,400,618	219,131
Year 1905	14,499,931	1,371,620	15,871,551	339,490
Year 1906	18,175,280	1,415,920	19,591,200	429,076
Year 1907	18,005,382	1,348,112	19,353,494	456,933
Year 1908	13,217,545	1,064,586	14,282,131	55,099
Year 1909	14,560,231	1,005,437	15,565,668	484,903
Totals.....	154,197,264	10,519,526	164,716,790	2,252,195

The above figures include sundry purchases from other producers and also coal used in the manufacture of coke.

AVERAGE LAKE FREIGHTS ON COAL.

Freight on anthracite and bituminous from Ohio ports to Lake Superior and Lake Michigan ports, in cents per net ton:—

Years.	Hard Coal.				Soft Coal.				
	Chicago...	Duluth.....	*Milwaukee	Escanaba..	Duluth.....	Green Bay	Manitowoc	Hancock-Houghton.	Sheboygan
1903.....	48	38	50.5	45	41.5	50.5	46	40	45.9
1904.....	43	34	47	40	37	45.5	47	35.6	40.6
1905.....	44	34	46.5	41.5	33.5	42	41.5	35.3	41.5
1906.....	46	35	46	42	35	42	42	42	42
1907.....	40	31	40	35	30	35	35	50	35
1908.....	40	30	40	35	30	35	35	30	35
1909.....	41	32	37	31	31	32	31	31.2	31.2

*Rates to Milwaukee and Chicago are practically the same. Coal of all kinds is shipped in net tons and handled without charge to vessels.

Westmoreland Coal Co.

PRINCIPAL OFFICE :

224 South Third St., PHILADELPHIA, PA.

THE WESTMORELAND COAL

The Coal of this Company is unexcelled for Gas-Making, both in Illuminating and for Producer Work ; for Brick and Terra Cotta Manufacture ; Locomotive Use ; Steam Threshers ; High Pressure Steaming ; and in all places where a Strong and Pure Fuel is Required.

**Mines Located in
WESTMORELAND COUNTY, PENNA.**

D., L. & W. RR. CO'S COAL TRAFFIC.

Following shows the operations of the Coal Department of this road; the disposition of the coal mined:—

Coal sales.	Tons 1906.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
At mines	107,006	113,216	106,865	101,057	85,616
Company's supply	1,409,133	1,476,334	1,672,237	1,377,708	1,259,315
Local agencies	5,655,945	5,300,377	6,199,942	5,789,685	3,652,607
Foreign agencies	2,460,054	2,315,801	2,405,147	2,341,677	1,254,674
D., L. & W. Coal Co.....					4,313,694
Total sales	9,642,138	9,205,728	10,384,191	9,610,127	10,565,906
Coal on hand Jan. 1st....	955,400	655,924	602,936	590,089	1,294,321
Coal on hand Dec. 31st...	655,924	602,939	590,089	1,294,321	872,724
Forw'd on D., L. & W....	7,998,220	7,387,840	8,577,354	8,388,315	4,919,728
Forw'd lines beyond.....	2,501,865	2,501,675	2,506,473	2,745,807	1,402,298
Sold by company.....	7,781,655	7,383,782	8,388,980	7,933,179	4,798,819
Sold by commission	2,676,729	2,123,236	2,282,831	2,234,139	1,288,131

Tonnage "sold by company" and "sold by commission" has no bearing on "total sales."

In conformance with the decision rendered by the United States Supreme Court that railroad companies cannot lawfully transport in interstate commerce coal owned by themselves, the sales division of the Coal Department of the D., L. & W. RR. was discontinued August 1, 1909, and a coal selling company was organized under the laws of the State of New Jersey. Therefore, the annual report of the Coal Department covers but seven months — from January to July, inclusive — of the sales end of the business. A contract was entered into with the new coal company, whereby the railroad agreed to sell its coal on board cars at the mines on the same basis as generally prevails in the anthracite region, or what is known as the 65 per cent. basis of tidewater prices; and also to sell and turn over all stocks of coal along its lines and on western docks, and to lease its trestles, to the coal company.

BITUMINOUS COAL CARRIED; RIVERS AND CANALS.

Route carried over.	Tons 1906.	Tons 1906.	Tons 1907.	Tons 1908.	Tons 1909.
Monongahela River	9,476,280	9,725,729	10,815,809	8,178,190	9,736,666
Soo Canal	5,524,355	7,728,255	9,893,427	8,517,717	9,940,026
Davis Island Dam	3,926,319	2,883,965	3,206,727	1,745,159	2,466,710
Kanawha River	1,427,880	1,113,410	1,648,871	952,566	1,246,008
Louisville Falls	1,592,487	1,154,991	1,476,885	936,827	1,198,105
Ches. & Ohio Canal	177,352	199,237	206,394	189,757	183,694
Kentucky River	67,135	73,307	109,173	52,691	84,000
Ches. & Dela. Canal		107,684	99,533	105,426	108,735
Green River		39,093	50,331	31,902	27,128

Reported by Department of Commerce and Labor.

EXPORTS FROM PHILADELPHIA.

The exports of anthracite coal from Philadelphia during the year 1909 amounted to 64,499 tons, compared with 55,283 tons during 1908, an increase of 9,216 tons. The exports of bituminous coal amounted to 767,284 tons, compared with 741,891 tons during the year previous, an increase of 25,393 tons.

The Millspaugh & Green Co.

COAL

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Rochester, N. Y.

Cleveland, Ohio.

Syracuse, N. Y.

Borden & Lovell

“Whitehall,” No. 17 Battery Place, New York City

ANTHRACITE AND BITUMINOUS COALS

H. B. REED, Pres. D. V. REYNOLDS, Sec’y and Treas. D. T. PRICE, Gen. Mgr

BROTHERS VALLEY COAL COMPANY

MINERS AND SHIPPERS OF

“B. V.” and Pen-Mar Cumberland Coals

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New York, 90 West St.

Boston, 94 Milk St.

Shipping Wharves: BALTIMORE, PHILADELPHIA and NEW YORK



MONONGAHELA RIVER CON. COAL & COKE CO.

Comparative statement of earnings for fiscal years ending October 31st.

	1905.	1906.	1907.	1908.	1909.
Profits, after deducting expenses....	\$1,869,151	\$2,286,335	\$3,277,083	\$2,275,387	*\$1,403,806
Less, Maintenance on river craft...	377,407	387,953	497,508	432,529	406,547
Depreciation charged off	318,147	319,007	353,678	318,912	422,548
Interest paid on bonds	495,585	473,230	473,435	459,945	442,492
Interest accrued on bonds....	67,000	43,930	42,975	41,055	39,615
Int. accrued, other indebt.....	81,881	95,881	94,335	27,448	49,064
Accrued taxes		70,881	57,594	47,618	8,314
Royalties on coal mined—					
Reinvested in properties	170,998	227,424	253,830	221,205	218,804
Used to retire bonds	163,655	215,507	243,577	198,893	193,573

The coal land originally purchased by the company consisted of 33,075 acres in Pennsylvania and 2,119 acres in Kentucky. Since date of organization additional acreage has been acquired, amounting to 4,281 acres in Pennsylvania and 558 acres in Kentucky. The land which has been mined out or sold aggregates 8,507 acres in Pennsylvania and 185 acres in Kentucky, so that the company's present holdings embrace 28,849 acres in Pennsylvania and 2,492 acres in Kentucky.

	1905.	1906.	1907.	1908.	1909.
Coal mined, tons, fiscal year, Oct. 31,					
Pittsburgh district	4,962,750	6,509,737	7,321,961	5,985,486	5,947,826
Ohio Valley C. & M. Co....	95,712	127,399	132,196	110,624	84,566
Corona Coal & Iron Co....	443,324				
Totals	5,501,786	6,637,136	7,454,157	6,096,110	6,032,392

*Includes loss on coal and equipment sunk at southern points by storm of Sept. 20, 1909.

BROAD TOP (PA.) TONNAGE FELL OFF.

The year 1909 does not seem to have been a prosperous one for Broad Top operators, judging from the small tonnage carried over the line of the Huntington & Broad Top Mountain RR. & Coal Co. During the year the shipments amounted to 488,588 tons, compared with 614,073 tons during the year previous, which was in itself one of depression in general business and a year in which tonnage showed a falling off in comparison with the prosperous year of 1907. The decrease in shipments during the year amounted to 125,485 tons, or 20.43 per cent. This is probably the only soft coal carrying road which showed a decrease in shipments during the year 1909, the others showing an increase of about ten per cent. over the 1908 tonnages.

NEW YORK, ONTARIO & WESTERN RAILWAY CO. FINANCIAL.

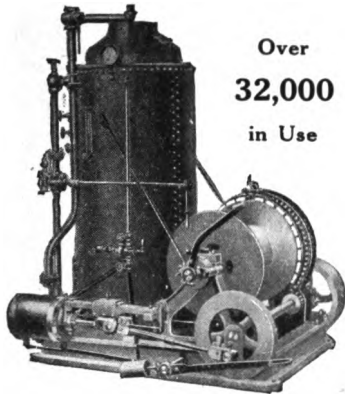
Financial results over a term of years make the following comparisons:—

Details.	1905.	1906.	1907.	1908.	1909.
Gross	\$7,090,888	\$7,265,057	\$8,202,360	\$8,121,494	\$8,290,170
Expenses and taxes...	4,889,901	5,233,287	5,644,345	5,586,695	5,643,101*
Taxes					189,151
Net	2,200,987	2,031,770	2,558,014	2,534,542	2,421,587
Other income					428,410
Charges	1,368,927	844,269	903,232	1,013,953	1,506,870
Surplus	1,283,276	1,187,500	1,654,782	1,520,589	1,343,127

Fiscal years ending June 30th.

*Does not include taxes.

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COALS

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No. 1 Broadway, NEW YORK No. 141 Milk St., BOSTON.

THE RAILROAD MILEAGE OF 1909.

There was 3,748 miles of new railroad built in the United States in 1909, of which the greatest part was laid in the far western States. According to statistics compiled by the "Railroad Age Gazette," in 1908, approximately 3,214 miles of new main track was laid, while a similar record for 1909 shows an increase of 534 miles, or 16.6 per cent. The 1908 record was the smallest since 1897, when 2,109 miles were laid. In 1909 about 28 per cent. less mileage was built than in 1907.

As indicating sectional development, it is to be noted that 1,281 miles were laid east of the Mississippi River in 1909, as compared with 761 miles in 1908, an increase of 520 miles, or 68.3 per cent. West of the Mississippi the increase was less than one-half of one per cent., the 1909 record showing 2,467 miles and the 1908 record 2,455 miles.

Texas was the leading State last year in the matter of new railroad mileage, with a total of 666 miles. Nevada was second, with 247 miles. No other State reported over 200 miles. Washington, Georgia, Oklahoma, Oregon, West Virginia, Montana, North Carolina, Kentucky, Pennsylvania, Louisiana and Florida, in descending order, each built over 100 miles of main line in 1909. The largest decrease reported was in Montana, where only 118 miles were built in 1909, as compared with 537 in 1908. Arkansas, Idaho, Virginia and Washington also show decreases of 100 miles or more from their 1908 records. No new mileage was reported in Connecticut, Delaware, Iowa, Massachusetts, North Dakota, Rhode Island or South Dakota.

RELATION OF COAL TO BOILER EFFICIENCY.

In every power-house, the thing of primary importance is to keep steam regardless of efficiency, if you are going to keep your cars moving. But in designing a plant or making changes, efficiency should be considered as well as the ability to keep steam. There are certain conditions where the boiler capacity is limited, the grate area is small, and the draft is not very strong, so that only the very best of coal can be burned. But if the quality of coal coming into a market be sufficiently varied and there is such difference in price that the cheaper coal would be a great saving at the end of the year, it will pay to make decided changes in the boiler plant, if necessary, in order to take advantage of the coal which will give the most evaporation per dollar. Many people consider the cost of a plant of primary importance, but the fuel bill will eat up the price of a new plant practically every year, so that it only takes a difference of a few per cent. in waste, as far as boiler efficiency is concerned, to repay a manufacturer for taking very decided steps in improving boiler conditions, so he will be able to burn the cheapest fuel.

BUFFALO & SUSQUEHANNA RY. TONNAGES.

During the calendar year 1909, the tonnage of bituminous coal carried over the line of the Buffalo & Susquehanna Ry. amounted to 1,451,084 tons, compared with 1,194,816 tons during the year previous, an increase of 256,268 tons. The coke tonnage carried over this road amounted to 323,992 tons during 1909, compared with 212,934 tons during 1908, an increase of 111,058 tons.

Lehigh & Wilkes-Barre Coal Co.

MINERS AND SHIPPERS OF

**Honey Brook, Lehigh, Wilkes-Barre Free
Burning and Plymouth Red Ash Coals**

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The Lehigh Coal and Navigation Company

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W. A. Lathrop
President



GREENWOOD

Rollin H. Wilbur
Vice-President

RICHARD T. DAVIES, General Coal Agent
F. N. ULRICK, Asst. Gen. Coal Agt.

**General Offices 437 CHESTNUT STREET
PHILADELPHIA**

NEW YORK—Carroll Moore, Sales Agent, 143 Liberty St.
BOSTON—O. B. Johnson, Eastern Sales Agent, 141 Milk St.

ADDRESS OF PRESIDENT LEWIS, OF THE U. M. W.,
AT ST. LOUIS POW-WOW.

One of the most notable additions to trade literature during the year was the address of President Lewis, of the U. M. W., at the St. Louis Pow-Wow of the Order Kokoal.

Mr. Lewis took a positive stand in regard to railroads and manufacturers paying a higher price for coal. His views were well received and extracts from his address were widely published. It seems appropriate to put permanently on record in this manner some of the salient features.

Mr. Lewis said in part:

I assume that you come here to get acquainted, not alone for the mere friendship that is in it, but in order that you can devise some plan, devise some way, in which you can promote the industry with which you are all so closely identified. If you have not come here to do that in addition to taking in all the social features that you can, enjoying the hospitality of the local people, then in my judgment you will not have completed your work in this convention.

We have here several classes of people directly interested in the coal business. We have the operators, men upon whom depends the responsibility of developing and operating the coal mines of the country. He has his capital invested. I desire to say that in my judgment he has more risk to run than the men engaged in any other kind of industry in this country so far as his investment is concerned and his opportunity to earn profits on his investment. We have here with us the salemen, as I understand, the man whose work it is to go out and sell the product of the mines, place it in such places where it will bring a return, not only to the man who operates the mine, not only to the men who are engaged in the coal business, but bring such a return as will give to the man who produces coal such wages as Americans ought to have to enjoy all of the privileges of this splendid, this great country, in which we live.

SALESMAN AFFECTED BY CHEAPNESS.

He has in his work many obstacles to overcome. First, he is looked upon as a man who represents a cheap industry—and we will talk more about that later. It is very plain that he represents in the eyes of the American people a cheap industry. He is not given that consideration that salesmen in any other lines are given by those who are compelled to buy the things which they need.

We have in addition to that the jobber, the man who buys coal in great quantities. They have to supply certain kinds of trade and they have their money invested; they have their risks to run; they have their duty to perform in order to make their investment a paying proposition. Like the salesmen, they have their troubles; like the operator, they have at times reason to complain of the treatment they receive.

We have the retailer, the man who devotes his time and his energy, the man who does everything to satisfy the domestic coal consumer.

THE RETAILER AND HIS OBSTACLES.

The retailer in the coal business is peculiarly situated. He is the man who comes in direct contact with the mass of the people, the men who are domestic users of coal. He has to have his yards. He must have his teams. He is required to have his men; and he has to have the teams taken care of, not two or three months in the year, but they must be taken care of 365 days every year whether he uses them or not. He must keep his men

DICKSON & EDDY

Scranton Coal Company COAL

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Susquehanna

Cameron Shamokin

Gaylord Kingston

Hickory Ridge

Lykens Seam

Greenough and

Colbert Red Ash Coals

Wm. Penn Hard White Ash

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BRANCH OFFICES :

NEW YORK—1 Broadway, George H. Bressette, Sales Agent.

PHILADELPHIA—602 Arcade Building, Howard W. Perrin, Sales Agent.

CHICAGO—1305 Old Colony Building, { C. L. Thompson,
ERIE—Scott Block, { General Western Agent.

BOSTON—95 Milk Street, Spencer T. Williams, Eastern Sales Agent.

BALTIMORE—100 Chamber of Commerce Bldg., C. E. Hitchcock, Sales Agent.

WILLIAMSPORT—1, 2 and 3 Hart Bldg., W. H. Curtis, Sales Agent.

employed, the most of the time at least, because, if he does not, when he needs them the worst the chances are that he would not have them. Not only that, the retailer is peculiarly situated because his business depends largely on weather conditions. If the weather is mild in winter, he has made his trade, he has bought his fuel, but he cannot sell his coal because people won't buy it. If there is a sudden change in the weather, however, and it is necessary for him to fill every coal bin quickly and promptly, if he doesn't do it he is the most abused man in the community, because he can't supply coal to everybody at the same time. And if, under those circumstances, during a large number of months he has not been able to make a profit, in fact, has been losing money in his business, what then? He discovers a chance to boost the price of coal up a little, because the coal consumers have not been filling their coal houses or their coal bins. The very minute he raises the price of retail coal, what happens? Why, he is charged with going into a conspiracy in restraint of trade, and he has confronting him not only all the intricacies of the law as interpreted by prosecutors and judges, but he has got hanging over him the fear of being hauled into court, tried for conspiracy, and sent to jail, simply because he dare ask for a reasonable or probably sometimes a little higher price than he should have asked, in the minds of the public, in order that he might get a reasonable profit on his investment. Those are questions we should understand more about. We should not understand these questions alone. The work of this splendid society, organized to lift men from a lower level to a higher, and boost along the coal business of the country, you will never complete until you begin to educate the American public that they must respect you whether they like you or not.

DANGERS ENCOUNTERED BY THE MINER.

We have the men at the mines, the men who produce the coal, the men whose surroundings are such that the occupation of a miner is more dangerous than the occupation of any other class of laboring men in this country with the single exception of those employed in making explosives. We know the miner is not constantly employed, because of the uncertainty of the coal business. We know that the miner wants a high standard of wages, because he believes in keeping with American ideas of having a high standard of everything. We believe that the men who produce the coal are entitled to more consideration than they receive at the hands of the American people and men in public office.

COAL TRADE REGARDED AS A CHEAP INDUSTRY.

What is the remedy? First, we must realize the coal industry is looked upon as a cheap industry. I contend that coal has been the medium that has made the United States the foremost industrial and commercial nation on the face of the globe. I contend that coal has been the medium that brings the nations of the world closer together than anything else. It is one of the mediums, one of the factors, that is pushing out the great force of civilization and education. Some men probably will not agree with me with regard to this statement. But we are willing always to discuss our statements with anybody at any time, in any place, when we have the opportunity. But the coal business, regardless of that fact, is cheap! cheap! cheap! So much so that there are lots of mine owners in this country to-day that are on the verge of bankruptcy. Not because of bad management, not because of poor management, not because of the inability of the men who own and operate the mines to do it properly, but because of a system that has been engrafted in the minds of the American people that

Charles S. Phillips
Henry H. Ashley

Charles P. Hunt
George A. McIlroy

PARRISH, PHILLIPS & CO.

SOLE AGENTS FOR

Parrish Coal Co. West End Coal Co.
Lehigh Coal & Navigation Co's
Old Company's No. 1 and No. 2 Buckwheat
Also Georges Creek Cumberland and Clearfield Coal

Lehigh & Wilkes-Barre Coal Co.
Wilkes-Barre, Honey Brook, Plymouth.

No. 1 Broadway NEW YORK

The American Coal Co.

OF ALLEGANY COUNTY

MINERS AND SHIPPERS FOR OVER FIFTY YEARS

GEORGES CREEK CUMBERLAND COAL

"A. C. C." POCAHONTAS COAL AND COKE

STANDARD QUALITY

SHIPPING WHARVES

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mine owners should mine coal for nothing in order to have the privilege of giving it away. And if the mine owners must mine for it for nothing, then the mine workers must dig it for nothing, and that would make a sorry spectacle as a part of this great country of ours if we were driven down to the point of starvation in producing this very, very valuable commodity called coal!

We all understand that coal moves every wheel of industry in this country. Why should it be looked upon as a cheap industry? There is only one explanation. That is, those engaged in the industry have spent too much time keeping apart, failing to get acquainted with each other, and too little time in trying to get acquainted with each other in order to boost along the business. I know that with the organizations that have been established all over the country, not only this splendid order Kokoal, but with all the retail and wholesale organizations being established in the different States, they ought to be encouraged to go on and make the organization stronger and better and more powerful.

TRADE MUST HAVE ITS RIGHTS.

We ought to be able, with the force we have, representing 700,000 mine workers, with the thousands of men engaged in all branches of this industry, to say in Washington, "We are not going to interfere with other people looking after their own business, but we do not propose to allow you people, without a strong and vigorous protest on our part, to any longer restrict our rights and keep us down in a low cheap level where we are not respected, even among each other, and not respected by public men of this country."

We can change this if we want to change it. It is up to us to try. How are we going to do it? Several things enter into this element of cheapness, and one of them is that the transportation lines of this country are buying their coal too cheap. Some men will say that is a broad statement to make, and that Lewis had better look out or he will be getting into the same position as many other men, knocking the railroads. I am not a knocker. I am a booster at all times

RAILROAD COAL TOO CHEAP.

I respect the railroad companies for the splendid work they have done in developing this country. Without railroads I imagine all our population, or the most of it, would be east of the Mississippi River. Railroads blazed the way for the development of this country of ours. And when I say that railroads are buying coal at a price that is less per ton than it costs to produce that coal I know what I am talking about. When a railroad company can buy coal f. o. b. mines, run-of-mine coal for 70 to 80 cents a ton, why, there is only one result. Either the men who are mining the coal must mine it for nothing, or the operators who own the mines must go out of business, because they cannot remain in it and produce coal at that figure and pay the salesmen on the road, pay the men who handle the coal, pay the retailers a reasonable profit for their time and for their energy and for their efforts in those different lines. If the railroads are buying coal too cheap who is responsible? You know who is responsible in my opinion? The politician partly, the retail dealer partly, the jobber partly, the operator partly, and the miners must assume their share of the responsibility. If we were able to go into some States in this country and organize the men that mine coal do you know what we would do? We would demand such a rate of wages that we would compel the mine owners to sell their product so that they could make a profit, or

NEW YORK **MEEKER & COMPANY** DETROIT

WYOMING VALLEY COAL

Shipments to all points reached by Pennsylvania RR. Tide shipments from South Amboy

143 LIBERTY STREET, NEW YORK

BLUE CREEK COAL

Mined Kanawha Region, West Va.

Shipments by Kanawha & Michigan, Hocking Valley
and Toledo & Ohio Central Railroads.

LAKE SHIPMENTS FROM TOLEDO



FORD BUILDING, DETROIT, MICHIGAN

PHILIP RAFFERTY, WESTERN AGENT

NEW YORK **MEEKER & COMPANY** DETROIT

THE LEHIGH VALLEY COAL CO.

MINERS AND SHIPPERS OF

HIGH GRADE COALS

FROM

WYOMING, HAZLETON, MAHANoy and SCHUYLKILL REGIONS

Agents for the Sale of

CROSS CREEK, JEDDO and HIGHLAND

Ample facilities for storing and shipping coal at Perth Amboy, Buffalo, Canastota,
North Fair Haven, Chicago, Milwaukee and Superior.

J. W. SKEELE, Vice-Pres. and Gen. Sales Mgr.

143 LIBERTY ST.

NEW YORK

we would go after the men who were in the business and help put them out if we could. That may sound like strong language, but I have been taught since I was a boy that self-preservation is the first law of nature. And it is only a question of how we can do those things.

STEAM COAL TOO CHEAP.

Not only do the railroads get their coal too cheap, but the manufacturers of this country get their coal too cheap. Whenever the mine owner must sell his coal to the steam trade at a figure in which there is no margin of profit, he must sell it to somebody at a higher rate in order that he may not go into bankruptcy. What is the sequel? If he is not able to get a higher rate from the steam trade, then the domestic consumer must pay the bills in order that the mine owner can earn a profit and that the dealers can secure a fair profit in their business. The result is that in retailing coal the domestic consumer must pay a higher price than he would be required to pay if the steam trade paid the price that they ought to pay for fuel. Then what? Following that out there is a general cry or protest from the domestic consumers against the price that they must pay for coal.

If the railroad corporations, if the manufacturers, were required to pay 25 cents a ton more for coal, it would mean that the salesmen representing the operators would sell coal to the jobbers and to the retailer—that is, the domestic coal, at a lower figure, and allay a great deal of this very, very vicious sentiment that now exists in the minds of the American people. I believe the time is coming when we can bring this about. I recognize that it is going to take a whole lot of work. I recognize that it is going to require an enormous amount of boosting on the part of everybody to bring about those results. But it is worth the effort. I can remember, and I am not so very old, the time when it would be a seventh day wonder for a coal miner to go into a meeting where there were salesmen of coal. I remember the time when coal miners and coal operators were at war with each other to such an extent that none of us had any respect for each other, and nobody had any respect for either of us. But we are changing that. As we grow older we seem to be getting a little wiser. And while we will not be able properly to perfect the things we desire as miners and operators, those of us who have been engaged in this work can feel that we have loaned our influence, our time and our energy to a condition that when it is handed down to our sons and our daughters they at least will be able to take it up and perfect the system that we had so much desired ourselves to perfect. It will come just as sure as you are meeting in the Southern Hotel in St. Louis. It requires work; it requires agitation. It requires organization, and over and above all it requires legislation.

THE COAL MEN INDISPENSABLE.

I can imagine a condition where every miner would suspend work, every operator take a vacation, every salesman, every jobber, and every retailer would say we are so little respected in our business by the people of this country, by men in public life, that we have decided to quit, all of us, and we will see how the American people like it. I wonder what would happen? Instead of having a pow-wow in this assembly room there would be a pow-wow on every street corner in the United States and they would be saying: What is the matter with those fellows in the coal business? Why, we have quit. Well, but we want you to go back. Why? Because we can't get along without you. That is the secret of the whole business.

FREDERIC A. POTTS & CO.**ANTHRACITE COAL BITUMINOUS**SALES AGENTS FOR
AND SHIPPERS OF **WILKES-BARRE WHITE ASH****Plymouth Red Ash and Honey Brook Lehigh**

Shipments from Port Johnston and Elizabethport, N. J., and All-rail to Eastern Points.

SHIPPERS OF **PARDEE BROS. & CO., Inc., LEHIGH COALS****LATTIMER and HARWOOD**Representing in the
New York and New England Territory **Messrs. Van Dusen, Brother & Co., Agents**ALSO
SHIPPERS OF **Philadelphia & Reading Coal & Iron Co's Coals**
and High Grade Bituminous Coals**GENERAL OFFICE :**
143 Liberty Street, New York, N. Y.New England Agent
CHARLES F. LAMPREY, Salem, Mass.**T. H. WATKINS, Receiver****Pennsylvania Coal & Coke Co.**

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High Grade Steamship, Factory and Rolling Mill Fuel**Pardee Bituminous Coal****GALLITZIN, FURNACE AND FOUNDRY COKE****Capacity of Mines over 5,000,000 Tons Annually****Owners and operators of the Port Liberty Piers and only the
automatic weighing barges in New York Harbor****NEW YORK, Whitehall Building**
PHILADELPHIA, Land Title Building **BOSTON, 141 Milk Street**
SYRACUSE, Union Building**ROBERT MITCHELL,**
General Sales Agent**J. W. SEARLES,**
Assistant Gen. Sales Agent.

Whenever we demonstrate to the American people, the coal consuming public, that they cannot get along without us, they will be ready to tip their hats to you on every street corner and wherever they meet you, and instead of a coal salesman going to a buyer with fear in his heart and trembling in his knees, wondering whether he can make a deal that will give him a fair profit, he can walk in with his hat on the back of his head, a smile on his face, and say, "I am selling coal. I represent the most important industry in this country. Do you want any?" "No." "All right." It is not a question of what you want to sell it for. "Come back here." "You have got to recognize me as a man of importance. If you want my commodity you have got to pay my price." Whenever they begin to realize that we will do better.

Some men say that is a dream. Everything is a dream until you put it into actual practice. It was a dream to attempt to run a boat with steam. It was a dream for men to run locomotives. It was a dream to talk over the telephone. It was a dream to flash your thoughts thousands of miles about the continent over the electric wire. It was a dream for men to travel in the air, in the opinion of some people. But all those things have become stern realities; and this question of lifting our industry out of the mud, so to speak, and placing it upon a higher standard is no more of a dream than all those other things that we have mentioned.

CHEAP COAL NEEDED, BUT NOT TOO CHEAP.

I want to make a statement, and I make it without any fear of contradiction, that the nation that can produce the cheapest coal will maintain its industrial and commercial supremacy over every other nation on the earth. And because of that there is no reason why we should occupy the low level that we do in this country. That very fact in itself should be one of the best reasons why we are going to lift this industry from its present low level and place it on a higher standard.

I believe that an effort ought to be made to get the operators of this country organized and agree on a minimum price of coal. And in the most favorable territory there should not be, in my judgment, a single ton of coal sold for less than \$1.25 run-of-mine on board. I am willing to take chances on offending the dignitaries of the law in defending the proposition that coal should be sold at a minimum price per ton of a dollar and a quarter. We want to conserve our natural supply of coal in this country; but we want to do something else. We want to protect to a greater extent the lives and the health of those men who go down in the mines and bring up the commodity to the surface. And if we are going to do that, how are we going to do it? Not by selling cheap coal, but by insisting on a higher price for that commodity in order that the men who own and develop and operate the mines can invest a little more in those appliances necessary to protect the lives and the health of our people. I want to lend what little influence I possess, what little time I can spare, what little energy there is at my command, to boost along the coal industry in this country from the men at the picks to the man who puts it in the bins of the coal consumer. I believe that we are going now along the highway towards one of the most phenomenal industrial revivals that this country ever experienced, and it means that it will take men that will work and boost our business to make it a permanent institution.

LET ALL WORK FOR TRADE BETTERMENT.

I know that we could more forcibly impress on the minds of the people of this country the importance of our industry if we all worked

B. NICOLL & COMPANY

COAL AND COKE

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Famous West Side Belt and Saw Mill Run
YOUGHIOGHENY GAS AND STEAM COAL

Clearfield Colliery Company

Genuine Moshannon Vein Steam Coal

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L. G. BRUDER, Mgr.

together with one common end in mind, the uplifting of the coal business to a higher plane. What does O K. mean if it does not mean all right in every sense? And I take it that when the Order of Kokoal puts its O. K. on the coal industry of this country you ought to make yourselves felt, and we will help our little way to do what we can to that end.

COAL OUTPUT OF BRITISH COLUMBIA.

From the British Columbia Provincial Mineralogist's Report for 1909:—
Tonnage prior to 1899, 13,217,586 gross tons.

Year.	Gross tons.	Year.	Gross tons.	Year.	Gross tons.
1899.....	1,306,324	1903.....	1,168,194	1907.....	1,800,067
1900.....	1,439,595	1904.....	1,253,628	1908.....	1,677,849
1901.....	1,460,331	1905.....	1,384,312	1909.....	2,006,476
1902.....	1,397,394	1906.....	1,899,076	Total.....	29,941,722

These tonnages are exclusive of coal used in the making of coke.

Production of coke has been:—

Year.	(Tons 2,240 lbs.)	Year.	(Tons 2,240 lbs.)	Year.	(Tons 2,240 lbs.)
1904.....	238,428	1906.....	199,227	1908.....	247,399
1905.....	271,785	1907.....	222,913	1909.....	258,703

Gross tonnage for the past four years was as follows:—

	1906.	1907.	1908.	1909.
Crow's Nest district	720,449	876,731	883,205	923,865
Vancouver Island district	1,178,627	1,342,877	1,226,182	1,476,735
A portion of the coal is made into coke with this result.....	199,227	222,913	247,399	258,703

The coal output of this province is one of the principal reliances of shipping on the Pacific Coast, and furnishes, also, a very important part of the coal supply of the city of San Francisco and other ports on the California coast. This, notwithstanding the imposition of a duty by the United States Government. As will be seen by the statistics printed, the tonnage shows a rather fluctuating growth, due, in part, to labor troubles. The discovery and utilization of the fuel oil of California was also a factor having a depressing influence upon the mining operations of British Columbia coal fields on Vancouver Island. But this has no effect on Crow's Nest Pass coal field, the coal from which does not get to the Pacific Coast at all.

TONNAGE OF OHIO RAILROADS.

Railroads.	1906.	1907.	1908.	1909.
Hocking Valley	3,861,212	4,093,672	3,304,002	3,433,550
Toledo & Ohio Central.....	1,831,666	1,790,649	1,583,763	1,415,247
Baltimore & Ohio	1,951,865	2,312,838	1,440,363	1,590,041
Wheeling & Lake Erie.....	2,430,614	3,473,378	2,721,723	3,249,819
Cleveland, Lorain & Wheeling....	2,145,996	3,004,161	2,417,814	2,634,233
Zanesville & Western	1,187,728	1,575,129	1,289,135	1,121,137
Toledo Div., Pennsylvania Co....	2,307,991	2,342,883	1,570,416	1,899,183
Lake Erie, Alliance & Wheeling..	843,237	1,244,319	1,102,055	1,153,611
Marietta, Co. & Cleveland Ry....	15,675	40,091	56,166	84,041
Wabash-Pittsburgh Terminal				36,314
Total, net tons.....	16,575,984	19,877,120	15,485,437	16,617,176

PENN GAS COAL CO.

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The Celebrated

PENN GAS

==== COAL =====



Owners of Cars
Owners of Barges

BALTIMORE & OHIO RR. FINANCIAL.

The annual report of the company for the fiscal year ending June 30th, shows:—

	1908.	1909.
Earnings Freight Traffic	\$55,681,785	\$53,872,416
Passenger Traffic	13,736,106	12,970,112
Express Traffic	1,453,720	1,480,121
Transportation of Mails	1,211,595	1,207,372
Miscellaneous Transportation	978,226	970,328
Operations other than Transportation....	547,346	543,168
Gross Earnings.....	73,608,781	71,043,519
Expenses Maintenance of Way and Structures....	10,892,061	9,017,396
Maintenance of Equipment.....	12,584,072	10,985,730
Traffic Expenses	1,669,404	1,608,451
Transportation Expenses	27,763,097	24,453,790
General Expenses	1,242,242	1,486,607
Total Expenses	54,150,879	47,551,976
Net Earnings from Operation.....	19,457,901	23,491,542
Percentage of Expenses to Earnings	73.57	66.93

KEEPING THE WATER OUT A GREAT PROBLEM.

Although the surface in the anthracite region is often parched, the mines are always compelled to hoist their customary amount of water in order to keep the lower levels dry. At the East Brookside shaft of the Reading the workings have been driven 1,854 feet below the surface, while gangways have been driven for 20 miles into the earth in different directions. To keep this big underground territory free of water an enormous pumping station is maintained, which hoists the water up the deep shaft at the rate of 3,000,000 gallons a day.

It was only a few years ago that it was thought impossible that anthracite mines so deep could be kept clear of water without an enormous cost, which would make the price of coal prohibitive. But ponderous machinery has solved the problem. The P. & R. C. & I. Co. astonished mining engineers some years ago, when the East Mines shaft was driven a distance of 1,600 feet into the earth. On account of the inadequacy of the machinery of those days this deep operation was never worked, although the company now has deeper mines.

TONNAGE OF THE VIRGINIAN RY. PIER.

Coal was dumped over the Virginian Ry. Co's pier during nine months of last year, and the total tonnage thereof amounted to 241,644 tons. It is expected that the amount of coal to be dumped over the pier during the year 1910 will easily exceed the half million ton mark and we may not be exaggerating at all if we say the tonnage will amount to more than 750,000 tons for the year 1910.

The tonnage dumped over the pier during the several active months of 1909 were: April, 13,557; May, 6,712; June, 22,272; July, 17,234; August, 42,836; September, 23,374; October, the record month of the year, 43,255; November, 38,558, and December, 34,846.

**The Chesapeake & Ohio
Coal & Coke Company**

WASHINGTON, D. C.

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New River
Pocahontas**

**Cast Iron Splint
Kanawha Gas**

**Kanawha Splint
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Berwind-White COAL MINING COMPANY

MINERS AND SHIPPERS OF THE

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BITUMINOUS COAL

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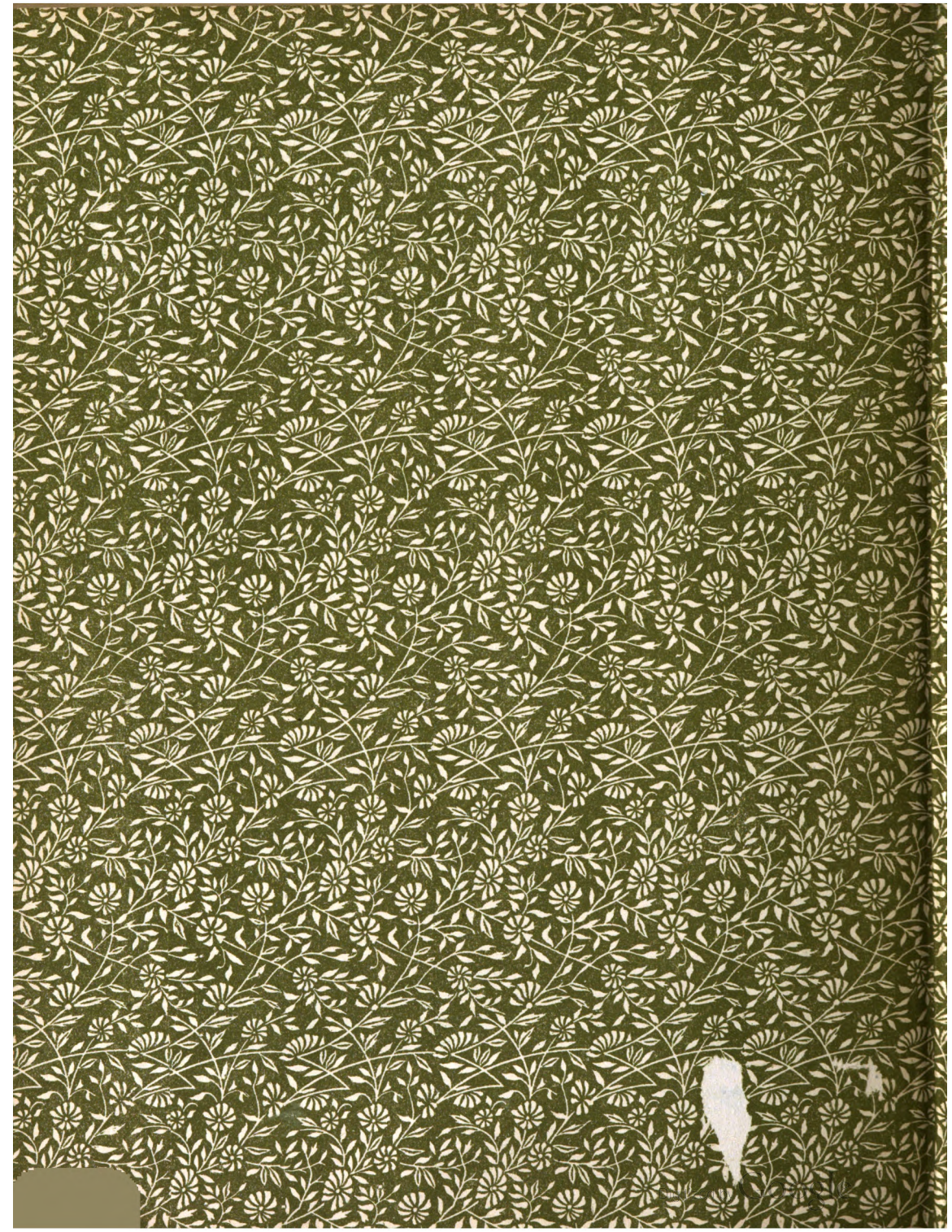
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WILLIAMS & PETERS

Anthracite and Bituminous

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**W. T. ROBERTS, Western Sales Agent, 1112 Prudential Building,
Buffalo, N. Y.**

F. N. PEASE, Southwestern Sales Agt., 215 Dearborn St., Chicago, Ill.